SOUTH STATION
EXPANSION

# South Station Expansion Project
# Environmental Notification Form

*March 2013*

massDOT
Massachusetts Department of Transportation

Deval L. Patrick, Governor
Timothy P. Murray, Lt. Governor
Richard A. Davey, MassDOT Secretary & CEO
Beverly A. Scott, Ph.D., General Manager
and Rail & Transit Administrator

massDOT
Massachusetts Department of Transportation
Rail & Transit Division

March 18, 2013

**RE: South Station Expansion Project**
**Environmental Notification Form, EEA No. 15028**

Dear Interested Party:

On March 14, 2013, the Massachusetts Department of Transportation (MassDOT) submitted the attached Environmental Notification Form (ENF) for the South Station Expansion (SSX) Project to the Executive Office of Energy and Environmental Affairs. As described in the ENF, the SSX Project includes five primary elements:

- Expansion of the South Station terminal facilities;
- Acquisition and demolition of the US Postal Service mail distribution facility located adjacent to South Station on Dorchester Avenue;
- Extension of the Boston Harborwalk along a reopened Dorchester Avenue;
- Provision for the opportunity for future public/private development adjacent to and over an expanded South Station; and
- Provision for adequate rail vehicle layover areas for both intercity and commuter rail services.

MassDOT understands that the project is categorically included for an Environmental Impact Report (EIR), given that the project will trigger review under 301 CMR 11.03: *"Provided that a Chapter 91 License is required, New non-water dependent use or Expansion of an existing non-water dependent structure, provided the use or structure occupies one or more acres of waterways or tideland"* as well as "*Construction of 1,000 or more new parking spaces at a single location.*"

The ENF will now be subject to a public review process. Anyone interested in commenting on this ENF should submit comments to:

Secretary Richard K. Sullivan, Jr.
Executive Office of Energy and Environmental Affairs (EEA)

100 Cambridge Street, Suite 900
Boston, MA 02114

*All comments must be received by EEA no later than Tuesday, April 9, 2013.*

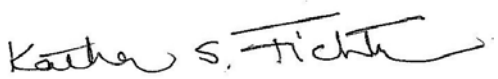
A public Scoping Session will be held in support of the ENF. The public Scoping Session is scheduled for:

Monday, April 1, 2013
4 PM to 6 PM
at
One South Station, Second Floor
Boston, Massachusetts
(*Use the Atlantic Avenue entrance*)

We look forward to a robust public review of this project and of the ENF. You can read more about the South Station Expansion project and sign up for project emails on the website: http://www.massdot.state.ma.us/southstationexpansion/Home.aspx.

Should you have any questions or require any additional information or assistance on this project or the document, please feel free to contact me at 857.368.8852 or by email at katherine.fichter@dot.state.ma.us.

Sincerely,



Katherine S. Fichter
South Station Expansion Project Manager
Manager of Long-Range Planning

Attachment

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# *Commonwealth of Massachusetts*

**Executive Office of Energy and Environmental Affairs**
**Massachusetts Environmental Policy Act (MEPA) Office**

## Environmental Notification Form

***For Office Use Only***

EEA#: ———————————

MEPA Analyst: ———————————

*The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.*

| | | |
|---|---|---|
| Project Name: South Station Expansion Project | | |
| Street Address: Summer Street and Atlantic Avenue (South Station)* | | |
| Municipality: Boston | Watershed: Boston Harbor | |
| Universal Transverse Mercator Coordinates: Zone 19; 330728 Easting, 4690935 Northing | | |
| Latitude: 42 degrees 21 minutes 8.176 seconds North | | |
| Longitude: 71 degrees 3 minutes 18.871 seconds West | | |
| Estimated commencement date: 6-30-2017 | | Estimated completion date: 6-30-2020 |
| Project Type: Transportation | | Status of project design: 5 %complete |
| Proponent: Massachusetts Department of Transportation (MassDOT) | | |
| Street Address: Ten Park Plaza | | |
| Municipality: Boston | State: MA | Zip Code: 02116-3973 |
| Name of Contact Person: Katherine Fichter, Manager of Long-Range Planning | | |
| Firm/Agency: Massachusetts Department of Transportation, Office of Transportation Planning | | |
| Street Address: Ten Park Plaza, Room 4150 | | |
| Municipality: Boston | State: MA | Zip Code: 02116 |
| Phone: 857.368.8852 | Fax: 857.368.0639 | E-mail: katherine.fichter@state.ma.us |

**Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?** ☒Yes
**Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?**

301 CMR 11.03(3)(a)5: Provided a Chapter 91 License is required, expansion of an existing non-water-dependent structure, provided the use or structure occupies one or more acres of (historic) tidelands.
301 CMR 11.03(6)(a)6: Generation of 3,000 or more new average daily traffic on roadways providing access to a single location (exceeded based on preliminary traffic analysis).
301 CMR 11.03(6)(a)7: Construction of 1,000 or more new parking spaces at a single location.

**Which State Agency Permits will the project require?** Table 1 lists required state permits and approvals. Table 2 lists required federal permits and approvals. Table 3 lists required municipal permits and approvals.

**Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres**: Funding of the preliminary engineering and environmental review phase of the project is by a combination of Commonwealth funds ($10 million) and federal funds ($32.5 million) through a grant from the Federal Railroad Administration. Funding for project construction has not been determined, but will likely include Commonwealth and federal sources for the transportation improvements and private funding for the joint/private development.

* Attachment D, Table 1 provides location data on alternative layover facility sites.

**Table 1. South Station Expansion Project – Required State Agency Permits[1]**

| State Agency | Required Permit/Approval/Notification | South Station Site | Layover Facility Sites |
|---|---|---|---|
| MA Executive Office of Energy and Environmental Affairs (EEA) | MEPA Certificate(s) of the Secretary (301 CMR 11.00) | yes | yes |
| MA EEA | Amendment to the Fort Point Channel Downtown Waterfront Municipal Harbor Plan | yes[2] | no |
| MA EEA | Public Benefit Determination (301 CMR 11.00) | yes | yes |
| MA Department of Environmental Protection (MassDEP) | Chapter 91 Waterways License (310 CMR 9.00) | yes | no |
| MassDEP | Stormwater Management Standards Compliance Review (314 CMR 9.00) | yes | yes |
| MassDEP | Sewer Extension/Connection Compliance Certification (314 CMR 7.00) | yes | yes |
| MassDEP | Massachusetts Contingency Plan Review (310 CMR 40.0000) | yes[3] | yes[3] |
| MassDEP | Notification Prior to Construction or Demolition (310 CMR 7.09)[4] | yes | yes |
| MassDEP | Order of Conditions[5] (310 CMR 10.00) | yes | yes |
| MassDEP | Asbestos Notification[6] (310 CMR 7.15) | yes[7] | To be determined (TBD)[8] |
| MA Department of Labor and Workforce Development, Division of Occupational Safety (DOS) | Asbestos Notification[6] (453 CMR 6.12) | | |
| Massachusetts Historical Commission (MHC) | State Register Review (950 CMR 71.00) | yes | yes |
| Massachusetts Office of Coastal Zone Management (MassCZM) | Coastal Zone Management Federal Consistency Certification (301 CMR 21.00) | yes | yes |
| Massachusetts Department of Transportation (MassDOT), Highway Division | State Highway Access Permit (720 CMR 13.00) | yes | yes |
| Massachusetts Bay Transportation Authority (MBTA) | Air-rights easements/approvals | yes | no |

Notes:
[1] Permit and review requirements may change based upon further alternative analysis, selection of the preferred alternative, and further project design.
[2] Applicable to Alternative 3.
[3] Preliminary determination based on historical usage of the sites.
[4] Submission of this notification may satisfy U.S. Environmental Protection Agency's (U.S. EPA)'s notification requirements of building demolition, per National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61 Subpart M.
[5] Administered through the Boston Conservation Commission.
[6] Submission of Asbestos Notification Form satisfies MassDEP and DOS requirements.
[7] Determination based upon site walk-through and initial evaluation.
[8] Determination pending site walk-throughs and evaluations

**Table 2. South Station Expansion Project – Required Federal Agency Permits[1]**

| Federal/State Agency | Required Permit/Approval/Notification | South Station Site | Layover Facility Sites |
|---|---|---|---|
| Federal Railroad Administration (FRA) | National Environmental Policy Act review (65 FR 28545) | yes | yes |
| Federal Aviation Administration (FAA) | Notice of Proposed Construction or Alteration (14 CFR 77) | yes[2] | no |
| Massachusetts Historical Commission | Section 106 Review (36 CFR 800) | yes | yes |
| Federal Highway Administration (FHWA) | Review, Modification of High Occupancy Vehicle (HOV) designation | yes | no |
| U.S. Environmental Protection Agency (U.S. EPA) | National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from Construction Sites (33 USC §1251 et. seq.)[3] | yes | yes |
| U.S. EPA | Notification of Building Demolition[4] | yes | yes |
| U.S. Department of Transportation | Section 4(f) Review (23 CFR 774) | yes | yes |

Notes:
[1] Permit and review requirements may change based upon further alternative analysis, selection of the preferred alternative, and further project design.
[2] Applicable to Alternative 3.
[3] Copy of application must be submitted to Boston Water and Sewer Commission.
[4] Notification requirements may be satisfied through submission of notification to MassDEP, per 310 CMR 7.09

**Table 3. South Station Expansion Project – Required Municipal Permits and Approvals[1]**

| Agency | Required Permit/Approval/Notification | South Station Site | Layover Facility Sites |
|---|---|---|---|
| Boston Conservation Commission | Order of Conditions (310 CMR 10.00)[2] | yes | yes |
| Boston Public Improvement Commission (BPIC) | Approvals, reopening of Dorchester Avenue, construction of Harborwalk | yes | no |
| BPIC | Approvals, other street openings | no | yes |
| Boston Water and Sewer Commission (BWSC) | Drainage Discharge Permit | yes | yes |
| BWSC | Building Site Plan Review and Approval, for construction of a new or reactivated service connection to the water, sewer or drainage system | yes | yes |
| BWSC | Demolition Termination Verification Approval, for removal or cutting and capping all water, sewer and fire pipes | yes | yes |
| Boston Redevelopment Authority (BRA) | Large Project/Planned Development Area Review, Article 80, Boston Zoning Code | yes[3] | no |
| BRA | Municipal Harbor Plan Process | yes[4] | no |

Notes:
[1] Permit and review requirements may change based upon further alternative analysis, selection of the preferred alternative, and further project design.
[2] MassDEP requirement administered locally.
[3] Applicable to Alternatives 2 and 3.
[4] Applicable to Alternative 3

| Summary of Project Size& Environmental Impacts | Existing[1] | Change[2] | Total[2] |
|---|---|---|---|
| **LAND** | | | |
| Total site acreage | 49 acres | | |
| New acres of land altered | | 0 | |
| Acres of impervious area | 46.5 acres (approx.) | 0 | 46.5 acres (approx.) |
| Square feet of new bordering vegetated wetlands alteration | | 0 | |
| Square feet of new other wetland alteration | | 0 | |
| Acres of new non-water dependent use of tidelands or waterways | | -1± | |
| **STRUCTURES** | | | |
| Gross square footage (approximate) | 1,660,000 | 1,315,000 | 2,975,000 |
| Number of housing units | 0 | 750 | 750 |
| Maximum height (feet) | 105 (historic facade) | 185 | 290 |
| **TRANSPORTATION** | | | |
| Vehicle trips per day | 5,400 | 4,500 | 9,900 |
| Parking spaces | 465 | 1,128 | 1,593 |
| **WASTEWATER** | | | |
| Water Use (Gallons per day) (approximate) | 31,000 | 567,000 | 598,000 |
| Water withdrawal (GPD) | not applicable (N/A) | N/A | N/A |
| Wastewater generation/treatment (GPD) (approximate) | 31,000 | 567,000 | 598,000 |
| Length of water mains (miles) | N/A | N/A | N/A |
| Length of sewer mains (miles) | N/A | N/A | N/A |

**Notes:**
**[1] Data provided for South Station Site only. The ENF text provides data on alternative layover facility sites.**
**[2] Highest range (Alternative 3) shown.**

**Has this project been filed with MEPA before?**
☒No

**Has any project on this site been filed with MEPA before?** ☒ Yes

South Station Site: Projects previously filed on the South Station site include the following:

EEA # 10270, North/South Rail Link Project. A Certificate of the Secretary of Environmental Affairs was issued on July 31, 2003 indicating that the Draft Environmental Impact Report (EIR) for the North/South Rail Link Project, consisting of a 3-mile tunnel linking North and South Stations, complied with Massachusetts General Law (MGL) Chapter 30.

EEA # 3205/9131, South Station Air Rights Project. A Certificate of the Secretary of Environmental Affairs was issued on April 14, 2006 indicating that Final EIR for the project, consisting of a 1.765 million square foot (sf) mixed-use development, complied with MGL Chapter 30. The South Station Air Rights project proponent recently filed a Notice of Project Change (NPC) for an extension of time.

EEA # 4327, South Station Wye Connector. A Certificate of the Secretary of Environmental Affairs was issued on March 1, 1982 determining that the project did not require an EIR.

EEA #4049, Tunnel Ventilation Program – Phase I. A Certificate of the Secretary of Environmental Affairs was issued on April 15, 1981 determining that the project, consisting of improvements to tunnel systems near Long Wharf, South Station and Gillette Park in South Boston, did not require an EIR.

EEA #3205, South Station Project. A Certificate of the Secretary of Environmental Affairs was issued on March 4, 1981 indicating that the FEIR for the project complied with MGL Chapter 30. An NPC was filed and approved for the project on December 16, 2002.

EEA #3173, Temporary South Station Bus Terminal. A Certificate of the Secretary of Environmental Affairs was issued on September 6, 1978 indicating that the project did not require an EIR. (Note that the project location was Atlantic Avenue at Dewey Square, but the project was associated with South Station.)

EEA #2868, South Station Project. A Certificate of the Secretary of Environmental Affairs was issued on February 2, 1978 indicating that the project did not require an EIR.

EEA #243, South Station Urban Renewal Project. A Certificate of the Secretary of Environmental Affairs was issued on November 15, 1973 indicating that the project, consisting of a BRA-developed master plan for the project area, did not require an EIR.

Alternative Layover Facility Sites: A review of the MEPA Online Project Information System did not provide any MEPA filings for the three layover alternative sites.

## GENERAL PROJECT INFORMATION – all proponents must fill out this section

### PROJECT DESCRIPTION:

The Massachusetts Department of Transportation (MassDOT), with funding from the Federal Railroad Administration (FRA), is undertaking a project to evaluate the expansion of Boston's South Station. The project includes planning, National Environmental Policy Act/Massachusetts Environmental Policy Act (NEPA/MEPA) reviews, and preliminary engineering. The South Station Expansion (SSX) project is being undertaken to allow for expansion of intercity and high-speed rail (HSR) service into Boston's South Station, and to improve existing rail operations and service delivery at South Station provided by the National Railroad Passenger Corporation (Amtrak) and the Massachusetts Bay Transportation Authority (MBTA).

South Station is the terminus of Amtrak's Northeast Corridor (NEC) service and its Lake Shore Limited service from Chicago via Albany. Located in Boston's Financial District, South Station is the sixth busiest station in the national Amtrak system and Boston's busiest multimodal transportation hub. South Station also serves as the terminus for the western and southern lines of the MBTA's commuter rail system. It provides connections to the MBTA Red Line and to Logan International Airport via the MBTA Silver Line. South Station's bus terminal is a hub for intercity, regional, and local bus service in eastern Massachusetts. Figure 1 in Attachment B shows the SSX project location on USGS maps. The SSX project includes five primary elements:

- **Expand the South Station terminal facilities,** including the addition of up to seven (7) tracks and platforms and construction of a new passenger concourse and other amenities. An expanded passenger concourse of approximately 215,000 square feet will provide comfortable modern facilities for passenger queuing and passenger services. Also included will be the reconstruction of the Cove, Broadway, and Tower 1 Interlockings at the terminal approach.
- **Acquire and demolish the U.S. Postal Service (USPS) General Mail Facility located on Dorchester Avenue** adjacent to South Station, which will provide an approximate 16-acre site onto which to expand South Station. (Note that the relocation of the USPS facility will be the subject of a separate environmental review process by others.) Dorchester Avenue will be restored for public and station access, and will be reconnected to Summer Street as a public way.
- **Create an extension of the Harborwalk along reopened Dorchester Avenue.** The restoration of Dorchester Avenue will include pedestrian, bicycle, local transit and vehicular facility improvements in and around South Station, and will create an enhanced pedestrian and community environment for South Station. The Harborwalk extension will complete the long-awaited last remaining gap in a continuous waterfront walkway in downtown Boston.
- P**rovide for the possibility of future joint/private development** adjacent to and over an expanded South Station. MassDOT and other stakeholders will seek to leverage the transportation investments to generate economic development and maximize livability and sustainability benefits in Boston. The three South Station Terminal Build alternatives include: Alternative 1 – Transportation Improvements Only; Alternative 2 – Joint/Private Development Minimum Build; and Alternative 3 – Joint/Private Development Maximum Build. Attachment A provides descriptions of the alternatives.
- **Provide adequate rail layover space to address existing and future intercity and commuter rail service needs.** Currently, there are not sufficient train layover facilities to meet existing South Station operational requirements, resulting in restrictive scheduling of revenue and non-revenue trains in and out of South Station. To accommodate existing needs and to facilitate future Amtrak and MBTA service expansions and other planned improvements, additional layover space is required. The three sites currently under consideration are the Boston Transportation Department-owned Tow Lot, Beacon Park Yard, and Readville - Yard 2. Attachment A provides information on the layover alternatives analysis.

The SSX project ENF is organized as follows:

- Attachment A provides a detailed description of the SSX project, including project context, project alternatives, proposed impact assessments, and mitigation measures identified to date;
- Attachment B provides figures of the SSX project, including the South Station site and three alternative layover facility sites;
- Attachment C consists of the Layover Facility Alternatives Analysis Report;
- Attachment D includes supplemental information in support of the ENF; and
- Attachment E consists of the ENF Circulation List.

**AREAS OF CRITICAL ENVIRONMENTAL CONCERN:**

Is the project within or adjacent to an Area of Critical Environmental Concern?
☒No

The Readville - Yard 2 site is not located within an Area of Critical Environmental Concern (ACEC), but the site is located approximately 500 feet north of the Fowl Meadow and Ponkapoag Bog ACEC. Figure 4, Sheet 4 in Attachment B shows the proximity of the ACEC to Readville - Yard 2.

**RARE SPECIES:**

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species?
☒No

The Readville - Yard 2 site is not located in an Estimated and/or Priority Habitat of State-Listed Rare Species. There are several potential vernal pools and an Estimated and/or Priority Habitat of State-Listed Rare Species located approximately 500 feet south of the site boundaries within the ACEC.

**HISTORICAL /ARCHAEOLOGICAL RESOURCES:**

Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?
☒Yes (Specify)

**South Station Site:** The South Station site includes the South Station Headhouse and Waiting Room, both of which are listed in the State and National Registers of Historic Places, and the USPS General Mail Facility/South Postal Annex, which is included in the Inventory of Historic and Archaeological Assets of the Commonwealth.

**Alternative Layover Facility Sites:** There are no historic structures, sites or districts listed in the State or National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth located within the BTD Tow Lot site or the Beacon Park Yard site. There are no structures, sites, or districts listed in the State or National Registers of Historic Places located within the Readville - Yard 2 site. Readville - Yard 2 is located within the Readville Industrial Area, which is included in the Inventory of Historic and Archaeological Assets of the Commonwealth.

Figure 3 in Attachment B presents historic resources located within the SSX project site boundaries and within the vicinity of the site boundaries.

There are no archaeological sites listed in the State Register of Historic Places or the Inventory of

Historic and Archaeological Assets of the Commonwealth within the SSX project site boundaries, including within the vicinity of the South Station Site and the three alternative layover facility sites.

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☒Yes (Specify)

The USPS General Mail Facility/South Postal Annex, located adjacent to the South Station tracks to the southeast, is proposed to be demolished. The structure is included in the Inventory of Historic and Archaeological Assets of the Commonwealth. Construction of the USPS General Mail Facility was completed in July/August 1936. The South Postal Annex, consisting of a substantial renovation and addition, was approved by the City of Boston in July 1967 and constructed between 1967 and 1971. Renovations to the South Postal Annex were made circa 1980. The General Mail Facility/South Postal Annex was surveyed by the Boston Landmarks Commission (BLC) in 1980, at which time it was noted that the structure did not contribute architecturally to the surrounding area. The building was evaluated by the USPS in 1983, which concluded that extensive renovations had substantially altered the original structure and that the property did not meet National Register eligibility criteria.

**WATER RESOURCES:**

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site?
No
Are there any impaired water bodies on or within a half-mile radius of the project site? Yes; if yes, identify the water body and pollutant(s) causing the impairment:

There are three impaired (Category 5) water bodies located within a half-mile radius of the SSX project: the Boston Inner Harbor is located within a half-mile of South Station; the Charles River is located within a half-mile of the Beacon Park Yard site; and the Neponset River is located within a half-mile of the Readville - Yard 2 site. Figure 4 in Attachment B presents the location of the impaired water bodies relative to the SSX project.

**South Station Site Vicinity**: Boston Inner Harbor is included on the 2010 Final Integrated List of Waters (MassDEP, 2011) as being impaired for polychlorinated biphenyls (PCBs) in fish tissue, fecal coliform, and other. The 2012 Proposed Integrated List of Waters (MassDEP, January 2012) increases the impairments to Boston Inner Harbor to include PCBs in fish tissue, fecal coliform, *Enterococcus*, dissolved oxygen, and other. A Draft Pathogen Total Maximum Daily Load (TMDL) has been developed for Boston Harbor in its entirety which includes Boston Inner Harbor and Fort Point Channel.

**Beacon Park Yard Site Vicinity**: The Charles River (Segment MA72-36) is included on the 2010 Final Integrated List of Waters as being impaired for chlorophyll-a, DDT, *Escherichia coli*, fish-passage barrier, fishes bioassessments, non-native aquatic plants, oil and grease, other flow regime alterations, dissolved oxygen, secchi disk transparency, nutrient/eutrophication biological indicators, total phosphorus, PCB in fish tissue, sediment bioassays, acute toxicity freshwater, other, and high pH. The 2012 Proposed Integrated List of Waters includes the same list of impairments for the Charles River, with no proposed changes. MassDEP has issued a Pathogen TMDL for the Charles River Watershed (CN 156.0). MassDEP has issued a Phosphorus TMDL for the Lower Charles River Watershed (CN 301.0).

**Readville - Yard 2 Site Vicinity**: The Neponset River (Segment MA73-02) is included on the 2010 Final Integrated List of Waters as being impaired for dissolved oxygen, fecal coliform, turbidity, foam/flocs/scum/oil slicks, PCB in fish tissue, debris/floatables/trash, and other. The 2012 Proposed Integrated List of Waters includes the same list of impairments for the Neponset River, with the addition of DDT, and *Escherichia coli*. In 2002, MassDEP issued a Bacterial TMDL for the Neponset River Watershed (CN 121.0) that includes all segments of the Neponset River.

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? No

**STORMWATER MANAGEMENT:**

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

To the extent practicable, MassDOT will comply with MassDEP's Stormwater Management Regulations during construction and operation of the SSX project, as identified in the Massachusetts Stormwater Handbook (February 2008), including the standard for redevelopment of previously-developed sites. MassDOT will identify mitigation strategies such as Best Management Practices (BMPs) for short-term construction and long-term project impacts. The SSX project will obtain a National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from Construction Sites. Additionally, MassDOT will use the City of Boston Department of Environment's Guidelines for Construction as a resource for minimizing environmental impacts of the SSX project.

**MASSACHUSETTS CONTINGENCY PLAN:**

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):

**South Station Site:** There are 22 Release Tracking Numbers (RTNs) associated with the South Station site. All of the sites have been closed. Table 2 in Attachment D provides a table summary of the RTNs, including their closure status.

**Alternative Layover Facility Sites:** There are three RTNs associated with the BTD Tow Lot site, all of which are closed; 46 RTNs associated with the Beacon Park Yard site, one of which is not closed; and two RTNs associated with the Readville - Yard 2 site, one of which is not closed. Tables 3 through 5 in Attachment D provide table summaries of RTNs associated with the three layover alternative sites, including their closure status.

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes X; if yes, describe which portion of the site and how the project will be consistent with the AUL:

**South Station Site:** There is an AUL associated with RTN 3-19396 at the existing South Station property, as shown in Figure 3, Sheet 1 in Attachment B. Residual contamination exists in the area adjacent to an elevator shaft in the northwest portion of the South Station Bus Station building. Should any SSX project construction activities be located within this defined area, they would require oversight by a Licensed Site Professional (LSP). A soil management plan would be required, indicating that impacted soils would be excavated and handled in accordance with federal and state regulations.

**Alternative Layover Facility Sites:** None of the layover alternative sites have existing AULs on any portion of the sites. The site identified as RTN 3-15991 located adjacent to the Readville - Yard 2 site at 50 Rear Wolcott Court has not been closed. The site is associated with metals, total petroleum hydrocarbon (TPH), polychlorinated biphenyls (PCBs), asbestos, and volatile organic compounds (VOCs) contamination in soils located primarily on property owned and operated by the James G. Grant Co., Inc.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? No

**SOLID AND HAZARDOUS WASTE:**

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

The SSX project will generate solid waste during demolition of the USPS facility. It is anticipated that the development of the layover facilities also will generate solid waste due to demolition of existing facilities. MassDOT will develop a demolition plan for the USPS facility and for other facilities as needed. The demolition plan will be incorporated within the project construction management plan. Construction management will be conducted following City of Boston Environment Department guidelines to the extent possible.

The demolition plan will include alternatives for recycling materials. Demolition debris will be segregated and recycled to the extent possible. Asphalt, brick and concrete will be processed and used for fill. Metal will be separated and recycled for scrap. In support of the waste management goal established in the GreenDOT Implementation Plan, MassDOT will discuss recycling goals for solid waste generated during the SSX project in the Draft EIR.

Will your project disturb asbestos containing materials? Yes; if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Based on a site walk-through and initial evaluation of the USPS General Mail Facility, there is asbestos in various materials throughout the facility. Demolition of the facility will disturb asbestos containing materials. MassDOT will comply with applicable federal and state regulations regarding asbestos-containing materials (ACM), including the U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR Part 61) and MassDEP asbestos regulations at 310 CMR 7.15.

Describe anti-idling and other measures to limit emissions from construction equipment:

MassDOT and its contractors will comply with MassDEP's Diesel Retrofit Program (DRP), a program to control emissions from construction equipment. Per MassDOT requirements, contractors will certify the installation of emission control devices on diesel construction equipment. Compliance with the State's Low Sulfur Diesel standards (310 CMR 7.05) will be met. Construction equipment will be required to comply with the Massachusetts vehicle idling regulation [310 CMR 7.11(1)(b)], which requires that engines idle for no more than five minutes.

MassDOT will use the City of Boston Department of Environment's Guidelines for Construction as a resource for minimizing environmental impacts of the SSX project.

**DESIGNATED WILD AND SCENIC RIVER:**

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? No

## ATTACHMENTS:

1. List of all attachments to this document.
   **Attachments are listed below and in the ENF Table of Contents.**

2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries.
   **Figure 1 in Attachment B presents the project location on USGS maps.**

3. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
   **Figure 2 in Attachment B presents the existing transportation facilities.**

4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts.
   **Figure 3 in Attachment B presents historic resources.**
   **Figure 4 presents environmental resources and constraints.**
   **Figure 5 presents coastal resources.**
   **Figure 6 presents the historic shoreline establishing Chapter 91 jurisdiction.**

5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase). **Figure 7 in Attachment B presents South Station Terminal – Joint/Private Development Alternatives. Figure 8 presents potential cross-sections of Dorchester Avenue restoration and Harborwalk extension. Figure 9 presents existing Dorchester Avenue and Harborwalk photographs in the vicinity of South Station.**

6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
   **Attachment E presents the ENF circulation list.**

7. List of municipal and federal permits and reviews required by the project, as applicable.
   **Table 2 in the ENF lists required federal permits and reviews.**
   **Table 3 in the ENF lists required municipal permits and reviews.**

## List of Attachments

**A Detailed Project Description**

**B Figures**

**C Layover Facility Alternatives Analysis Report** (provided on CD-ROM)

**D ENF Supplemental Information**

**E ENF Circulation List**

## LAND SECTION – all proponents must fill out this section

### I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1))? No; if yes, specify each threshold:

Based on preliminary design plans, the SSX project activities, including activities at the South Station site and the three layover alternative sites, do not exceed any review thresholds related to land.

### II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

The following tables present existing MassGIS-level information and preliminary plans for the South Station site and the three alternative layover sites. MassDOT will refine the dimensions of the South Station site and alternative layover sites as design is advanced. Land/structure acreage shown for South Station reflects conditions in Alternative 3.

**South Station Site**

| Land/Structure Acreage | Existing[1] | Change[2,3] | Total[3] |
|---|---|---|---|
| Footprint of buildings | 14.5 acres | +2.0 acres | 16.5 acres |
| Internal roadways | 5.0 acres | -1.0 acres | 4.0 acres |
| Parking and other paved areas | 6.0 acres | 1.0 acres | 7.0 acres |
| Other altered areas | 21.5 acres | -2.0 acres | 19.5 acres |
| Undeveloped areas | 2.0 acres | 0.0 acres | 2.0 acres |
| **Total: Project Site Acreage** | 49.0 acres | | 49.0 acres |

Notes:

[1] Existing acreage calculated as follows:
Footprint of buildings = South Station Rail/Transit terminal, South Station Bus Terminal, USPS facility, MassDOT Vent Building No. 1
Internal roadways = Dorchester Avenue
Parking and other paved areas = USPS facility parking/paved area
Other altered areas = Rail/track facilities, existing Harborwalk/park south of USPS facility
Undeveloped areas = Fort Point Channel water area

[2] Change calculated as follows:
Footprint of buildings = Removal of USPS building; expansion of headhouse over track, South Station Air Rights development project, and private development associated with Alternative 3
Internal roadways = Conversion of a portion of Dorchester Avenue to Harborwalk
Parking and paved areas = Conversion of a portion of Dorchester Avenue to Harborwalk
Other altered areas = Expansion of headhouse over track

[3] Does not include additional planned open space that may be incorporated as part of the SSX project.

**BTD Tow Lot Site**

| Land/Structure Acreage | Existing | Change[1] | Total |
|---|---|---|---|
| Footprint of buildings | 54,000 sf | -39,000 sf | 15,000 sf |
| Internal roadways | 374,000 sf | -218,000 sf | 156,000 sf |
| Parking and other paved areas | | | |
| Other altered areas | 78,000 sf | +258,000 sf | 336,000 sf |
| Undeveloped areas | 0 | 0 | 0 |
| **Total: Project Site Acreage** | 11.6 acres (506,000 sf) | | 11.6 acres |

Note:

[1] Change due to demolition of existing buildings, addition of new buildings and power substation, reduction in parking and paved areas, and construction of track.

**Beacon Park Yard Site**

| Land/Structure Acreage | Existing | Change[1] | Total |
|---|---|---|---|
| Footprint of buildings | 3,000 sf | +41,000 sf | 44,000 sf |
| Internal roadways<br>Parking and other paved areas | 280,000 sf | -12,000 sf | 268,000 sf |
| Other altered areas | 692,000 sf | -28,000 sf | 664,000 sf |
| Undeveloped areas | 0 | 0 | 0 |
| **Total: Project Site Acreage** | 22.4 acres (975,000 sf) | | 22.4 acres (975,000 sf) |

Note:
[1] Change due to construction of new buildings, reconfiguration of internal roadways, paved areas, and track. These areas reflect the estimated size of Beacon Park Yard, not the actual area of the MBTA and MassDOT rights that are discussed in this document.

**Readville - Yard 2 Site**

| Land/Structure Acreage | Existing | Change[1] | Total |
|---|---|---|---|
| Footprint of buildings | 35,000 sf | +12,000 sf | 47,000 sf |
| Internal roadways<br>Parking and other paved areas | 141,000 sf | +61,000 sf | 201,000 sf |
| Other altered areas | 582,000 sf | -72,000 sf | 510,000 sf |
| Undeveloped areas | 0 | 0 | 0 |
| **Total: Project Site Acreage** | 17.4 acres | | 17.4 acres |

Note:
[1] Change due to construction of new building, addition of track, reduction in material storage area.

B. Has any part of the project site been in active agricultural use in the last five years? No

C. Is any part of the project site currently or proposed to be in active forestry use? No

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? No

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? No

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? No

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? No

**III. Consistency**

A. Identify the current municipal comprehensive land use plan:

**South Station Site**
Title: Article 40 of the Boston Zoning Code: South Station Economic Development Area (EDA)
Date: September 13, 1989, as amended through June 29, 2006.

**BTD Tow Lot Site**
Title: Article 8 of the Boston Zoning Code, Chapter 665 of the Acts of 1956
Date: as amended through November 30, 2001.

**Beacon Park Yard Site**

Title: Article 51 of the Boston Zoning Code: Allston-Brighton Neighborhood District
Date: November 13, 1991, as of March 15, 2006.

**Readville - Yard 2 Site**
Title: Article 69 of the Boston Zoning Code: Hyde Park Neighborhood District
Date: February 9, 2012, August 1, 2012.

B. Describe the project's consistency with that plan with regard to:

1) economic development
2) adequacy of infrastructure
3) open space impacts
4) compatibility with adjacent land uses

The following documents the consistency of the SSX project with Boston Redevelopment Authority (BRA) planning policies, MassDOT's GreenDOT Implementation Plan, and neighborhood plans.

**Consistency of the SSX Project with Boston Redevelopment Authority Planning Policies**

As the City of Boston's Planning and Economic Development Agency, the BRA creates zoning districts to establish planning policies, development controls, and design guidelines for implementing a general plan for the city of Boston. Pursuant to Article 80 of the Boston Zoning Code, the BRA is charged with reviewing, through a public process, the design of real estate developments and their effect on the surrounding community as a whole, including economic development, adequacy of infrastructure, open space impacts and compatibility with adjacent land uses. The City of Boston and the BRA have been close partners on the SSX project for many years. As state entities pursuing governmental projects, neither MassDOT nor the MBTA are subject to local zoning. While the infrastructure improvements portion of SSX project (Alternative 1) will not be subject to local zoning, every effort will be made to develop the project to be consistent with the BRA's land use policies and objectives. The private development portion of the SSX project (as proposed with Alternatives 2 and 3), however, would be subject to future BRA review and approval.

**South Station Site:** Article 40 of the Boston Zoning Code establishes the zoning regulations for the comprehensive plan for the South Station Economic Development Area (EDA). Article 40 constitutes the South Station EDA Plan, the general plan for the South Station EDA, and the portion of the general plan for the City of Boston applicable to the South Station EDA.

Pursuant to Article 40, Section 40-11, the BRA may approve a Development Plan in accordance with the BRA's planning and development review process for Planned Development Areas (Article 80, Development Review and Approval), if the Development Plan proposes a plan for development that is consistent with the goals of the South Station EDA Plan, including one or more of the following:

- The diversification and expansion of Boston's economy in new areas of economic activity;
- The provision of public benefits in accordance with Parcel-to-Parcel Linkage program guidelines;
- The creation or retention of job opportunities; or
- The enhancement of intermodal transportation capabilities and transit-oriented development.

The SSX project is consistent with the goal of the South Station EDA Plan to enhance intermodal transportation capabilities and transit-oriented development. The SSX project's transportation investments, as proposed with the Build alternatives, will enhance the station's intermodal transportation capabilities among rail, bus and subway modes. By providing for future private development, as proposed with Alternatives 2 and 3, MassDOT will facilitate creation of job opportunities and will promote future transit-oriented development. With Alternatives 2 and 3, MassDOT will advance the overall goals of the Article 40, which include:

- Directing downtown development in a way that promotes balanced growth for Boston;
- Channeling growth away from congested areas and toward underutilized sites along the Fort Point Channel;
- Permitting redevelopment which provides significant community benefits;
- Creating a mixed-use district which includes office, retail, and hotel;
- Creating a complex of facilities and services which will foster economic growth in Boston and throughout the region;
- Increasing the number of jobs in those sectors of the economy likely to employ Boston residents;
- Creating a transition of uses and character between downtown and Chinatown and Leather Districts;
- Utilizing existing transit centers; and
- Improving vehicular access to the city by establishing parking facilities near major commuter arteries.

**BTD Tow Lot Site:** The BTD Tow Lot site is located within the I-2 General Industrial District. As established by Article 8 of the Boston Zoning Code, a storage yard accessory to a railroad operation is an allowed use within the I-2 District, provided that the yard is located at least 150 feet from every residential use. The location of SSX project layover facilities at the BTD Tow Lot site would be compatible with current zoning. There are no residential uses located within 150 feet of the site boundaries.

**Beacon Park Yard Site:** The Beacon Park Yard site is located within the Allston Landing South EDA, an area that has residential uses nearby, but within which are located industrial and transportation uses, some of which are in transition. The area has also been the site of recent development by nearby institutions. The purpose of the EDA is to promote industrial and manufacturing uses and to preserve and maintain the existing industrial uses. A rail freight terminal and accessory railroad storage yard are approved uses without restrictions within the Allston Landing South EDA. The Beacon Park Yard site has served for many years as a rail yard and intermodal terminal in Boston for CSX Transportation, Inc. (CSXT). Today, the freight and intermodal functions are in transition, to be relocated to central Massachusetts in 2013. This site would allow the MBTA to maintain a double track MBTA main line, construct a four-track layover yard on the MBTA railroad easement (with space for up to 12 consists [locomotive and coaches]), and utilize an area over which MassDOT maintains an option to acquire an easement for the purpose of developing an intermodal facility for freight to, from, or through the Port of Boston.

**Readville - Yard 2 Site:** The Readville - Yard 2 site is located within the Light Industrial (LI-1) Subdistrict. An accessory railroad storage yard is an allowable use within the LI-1 Subdistrict. A review of Boston Zoning District Map 12 indicates that the site potentially abuts a Riverfront Protection Overlay District (RPOD) and a single-family residential subdistrict (1F-6000 Subdistrict, at Wolcott Court). The RPOD encompasses land within 200 feet of the centerline of the waterway (Neponset River). For new non-residential buildings or existing structures adding 2,000 or more square feet of gross floor area, design guidelines for the RPOD require screening of service areas, and recommend minimal use of impervious surface. Additional Article 69 requirements include a minimum rear yard setback of 20 feet and screening and buffering requirements where the lot abuts a residential district. The location of SSX project layover facilities at Readville - Yard 2 would maintain the existing industrial use.

## Consistency of the SSX Project with MassDOT's GreenDOT Implementation Plan

The SSX project is consistent with the goals and policies of MassDOT's GreenDOT Implementation Plan (12.12.12). The GreenDOT Implementation Plan establishes broad sustainability goals to decrease resource use, minimize ecological impacts, and improve public health outcomes from MassDOT's operations and planning processes. The following is a review of the consistency of the SSX project with GreenDOT's sustainability goals:

### *Air Quality:*

- ***Reduce greenhouse gas (GHG) emissions.*** In coordination with the Massachusetts Department of Energy Resources, MassDOT will assess the SSX project's role in complying with the Revised MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol (May 5, 2010). MassDOT will describe and quantify measures to avoid, minimize or mitigate GHG emissions, including direct emissions from diesel trains and on-road sources, and indirect emissions due to electricity use and other energy related uses.
- ***Improve statewide air quality.*** During construction, MassDOT and its contractors will comply with MassDEP's Diesel Retrofit Program (DRP). Contractors will certify the installation of emission control devices on diesel construction equipment. Construction equipment will be required to comply with the Massachusetts vehicle idling regulation. The construction of one or more additional layover facilities will increase the efficiency of train operations at South Station by decreasing the dwell time of commuter rail trains at the Station.

***Energy Consumption:***

- ***Consume less energy.*** South Station will be designed to allow building construction to meet MA LEED Plus criteria. In addition to adhering to LEED criteria, MassDOT will reference various green infrastructure development guidelines including the Institute for Sustainable Infrastructure's *Envision Sustainable Infrastructure Rating System* that will assist the project in implementing energy savings during construction and throughout operation.

***Land Management:***

- ***Minimize energy and chemicals used in maintenance.*** The restoration of Dorchester Avenue will enhance the urban street coverage in the South Station area. For the streetscape improvements, MassDOT will consider the use of native and low maintenance vegetation.
- ***Enhance ecological performance of MassDOT-impacted land.*** MassDOT will evaluate the use of low impact light to conserve energy and avoid light pollution.

***Material Procurement:***

- ***Improve life-cycle impacts of investments.*** MassDOT will seek to improve the life-cycle impacts of its investments in the SSX project. Options for improving the material procurement process include increasing the percentage of recycled materials in paving/concrete installations, encouraging sustainable concrete construction techniques in contracts, designing Dorchester Avenue restoration to maximize shade coverage of asphalt/concrete surfaces, and encouraging reusable and renewable materials in design specifications.
- ***Purchase environmentally preferred products.*** MassDOT will investigate the purchase of energy efficient equipment for the SSX project.
- ***Build green facilities for MassDOT.*** MassDOT's goal for South Station is to meet "high green building standards." For the new construction portion of the project, South Station will be designed to MA LEED Plus standards. Additionally, South Station will be retrofitted to meet environmental design criteria.

***Transportation Planning, Policy and Design:***

- ***Design a multi-modal transportation system.*** The intent of the SSX project is to improve the existing multi-modal transportation system by allowing for the expansion of intercity and HSR service into Boston without limiting commuter rail service delivery. Dorchester Avenue restoration will be designed as a Complete Streets project. Bicycle and pedestrian facilities will be prioritized in the design, with emphasis upon access to South Station, improvements in bicycle stations (with showers/lockers), and secure bicycle parking.
- ***Promote healthy transportation and livable communities.*** The SSX project includes air-rights, transit-oriented, mixed-use development, all of which promote the GreenDOT Implementation Plan's concept of livable communities.

- ***Triple mode sharing of bicycling, transit and walking.*** The SSX project supports MassDOT's goal to expand capacity and increase ridership while promoting bicycling and walking.

***Waste Management:***

- ***Achieve zero solid waste disposal.*** MassDOT will establish recycling percentage goals to decrease the amount of waste generated during SSX project demolition and construction.
- ***Reduce all exposure to hazardous waste.*** As required, MassDOT will utilize an LSP to oversee construction activities within the designated AUL area. MassDOT will develop sampling and analysis work plans and recommendations for response actions prior to facility demolitions.

***Water Resources:***

- ***Use less water.*** MassDOT will investigate fixture retrofit and the use of innovative dual plumbing systems in the expanded South Station, and use of low maintenance vegetation for the streetscape improvement plan.
- ***Improve ecological function of water systems.*** MassDOT will investigate options to increase the amount of permeable surfaces/infiltration, reduce stormwater volumes, and utilize BMPs in construction and operation.

**Consistency of the SSX Project with Neighborhood Land Use Plans**

The SSX project is consistent with the goals and policies of land use plans for neighborhoods located in the vicinity of South Station, identified as follows:

***Chinatown Master Plan 2010: Community Vision for the Future.*** The study area for the *Chinatown Master Plan* overlaps with the South Station EDA. *The Chinatown Master Plan 2010* references the goals established in the first Master Plan, *Chinatown Community Plan 1990: A Plan to Manage Growth*, to measure the community's progress in the last decade. Both Master Plans cite the importance of a connection to South Station and the South Station EDA. The SSX project will restore public access to South Station via Dorchester Avenue, and will include an enhanced pedestrian and community environment. Additionally, the SSX project could provide a linkage through the station from the Chinatown Gate to Fort Point Channel.

***Fort Point Channel Watersheet Activation Plan.*** The SSX project is consistent with the *Fort Point Channel Watersheet Activation Plan.* The SSX project will include redeveloping the USPS property; reconfiguring Dorchester Avenue for station, property, and public access; constructing an extension of the Boston Harborwalk; and providing a linkage through the station from the Chinatown Gate to Fort Point Channel. These project elements will "*enhance the civic role*" of Fort Point Channel.

***The Fort Point District 100 Acres Master Plan.*** Per *The 100 Acres Master Plan*, the SSX project is a key component of the continued development of the South Boston Waterfront District/Innovation District. *The 100 Acres Master Plan* transportation analysis concludes that without new infrastructure investments, such as additional tracks at South Station, only two-thirds of the proposed full build-out for the entire South Boston Waterfront should be allowed.

***South Bay Planning Study.*** The South Bay Study Area is situated as the intersection of three sections of Boston's downtown: Chinatown, the Leather District, and the South Station/Fort Point Channel area. The *South Bay Planning Study* references the importance of linkages between South Bay and South Station, including the following which are incorporated into the SSX project: direct pedestrian connections to the southern end of the facility; shuttle and other transit services via the South Station connector or possibly other routes; and infrastructure for bicycle commuting.

***Fort Point Downtown Waterfront Municipal Harbor Plan***: The Fort Point Downtown Municipal Harbor

Planning Area comprises approximately 37 acres of land and water extending from the old Northern Avenue Bridge to the southern shoreline of Fort Point Channel and includes a portion of the South Station Site. The South Station Site is located within the Fort Point Downtown Waterfront Municipal Harbor Planning Area, for which Phase 1 and Phase 2 Municipal Harbor Plans have been approved. The transportation improvements of the SSX project (Alternative 1) will comply with all applicable licensing standards for a non-water-dependent use infrastructure project and do not require any regulatory modifications that may be available through the municipal harbor planning process. Pending the selection of the preferred alternative, private development (Alternative 3) could require an amendment to the Fort Point Downtown Waterfront Municipal Harbor Plan.

A. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA).

**RPA: Metropolitan Area Planning Council (MAPC)**
Title: ***MetroFuture: Making a Greater Boston Region***
Date: May 2008

**RPA: Boston Region Metropolitan Planning Organization (MPO)**
Title: ***Paths to a Sustainable Region***
Date: September 22, 2011

B. Describe the project's consistency with that plan with regard to:

1) economic development
2) adequacy of infrastructure
3) open space impacts

***MetroFuture: Making a Greater Boston Region* (*MetroFuture*)** is a comprehensive regional plan for the Boston metropolitan area, prepared by the Metropolitan Area Planning Council (MAPC). The plan provides a complete set of implementation strategies, recommendations and action steps for regional growth and development. *MetroFuture* focuses on six key elements for growth and development in the region. One element for regional growth, entitled "Energy, Air, Water and Wildlife," emphasizes reduced reliance on the automobile as a major driver in reducing the region's greenhouse gas emissions. Strategy #12, "Expand Coordinated Transportation," addresses the SSX project. Within its recommendation to "*invest in projects that expand and add capacity to the existing transit system*," *MetroFuture* notes that "*limited station capacity at North and South Stations and limited track capacity leading to those stations reduces the potential for reverse commuter service, express service, or more frequent service*." To remedy the limited capacity, *MetroFuture* recommends that the region should take steps to enhance the commuter rail system, including expansion of commuter rail capacity at South Station.

***Paths to a Sustainable Region*** is the Long-Range Transportation Plan (LRTP) for the Boston region, prepared by the Boston Region Metropolitan Planning Organization (MPO, 2012 to 2035). The LRTP lists seven visions and correlating sets of policies established by the MPO for attaining a sustainable transportation system. Affiliated with the LRTP are two documents that the MPO produces annually: the Transportation Improvement Program (TIP) and the annual Unified Planning Work Program (UPWP). The TIP lists all transportation projects slated to receive federal funds over a four-year horizon, as well as all projects programmed with federal and state highway funds that are expected to be available. The UPWP describes all regionally significant surface-transportation planning projects and technical support projects expected to be undertaken in the Boston metropolitan area.

The SSX project is consistent with the LRTP. It is identified in both *Paths to a Sustainable Region*, the current LRTP, and *Journey to 2030*, the MPO's previous LRTP planning document (adopted April 2007). The two key elements of the SSX project, track expansion at South Station and construction of layover facility(ies), meet an LRTP-Identified Need and address the following MPO vision topics for

attaining a sustainable transportation system: Livability and Economic Development; Mobility; and Environment and Climate Change. The SSX project elements were identified as Illustrative Projects in *Journey to 2030*. Illustrative Projects are defined as projects that meet the MPO's criteria for selection, but that are not included in the recommended list of projects because there is not sufficient revenue to fund them. In *Journey to 2030*, the MPO voted to include the "South Station Track Capacity Expansion" and the "Midday and Overnight Layover Facilities" as Illustrative Projects that would maintain the existing system, citing these projects as part of a group of projects that would help the MBTA commuter rail system to operate more efficiently and allow for expansion of various commuter lines in the future. In *Paths to a Sustainable Region*, the SSX project is cited as an example of an urgent infrastructure need related to mobility: "additional tracks are needed at South Station to accommodate any growth in service on south-side commuter rail lines." The SSX project also is included in the LRTP's transit "Universe of Projects and Programs," which lists projects identified in the Needs Assessment for the Central Area (Boston Proper and adjacent neighborhoods and communities) and for the Boston Region MPO. For the Central Area, existing track capacity at South Station was identified as a "mobility issue," as it limits service expansion. For the Boston Region MPO, the need for additional tracks at South Station was cited as a "major infrastructure constraint" that limits capacity and hinders future system expansion.

The SSX project is consistent with the principles of the TIP. By increasing transit capacity, the SSX project will be able to accommodate proposed expansion of the MBTA's Commuter Rail service, including upgrade of the MBTA Fairmount Commuter Rail Line, which is listed on the Boston Region MPO's most recent TIPs. The SSX project is consistent with the UPWP. The UPWP for Federal Fiscal Year (FFY) 2013 identifies the SSX project as a project receiving discrete funding continuing from FFY 2012 into FFY 2013. CTPS staff activities in FFY 2013 in support of the SSX project include developing and testing options for expanding South Station under the direction of the Transit Service Planning Group and the Transportation Systems Analysis Group.

## RARE SPECIES SECTION

**I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? No

An Estimated and/or Priority Habitat of State-Listed Rare Species is located approximately 500 feet south of the Readville - Yard 2 site, within the Fowl Meadow and Ponkapoag Bog ACEC.

B. Does the project require any state permits related to **rare species or habitat**? No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? No.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**.

## WETLANDS, WATERWAYS, AND TIDELANDS SECTION

**I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? Yes; if yes, specify, in quantitative terms: 16 acres (approximately)

**South Station Site:** Activities at the South Station site will exceed the following review threshold related to historic filled tidelands as follows: 301 CMR 11.03(3)(a)5, Provided a Chapter 91 License is required, expansion of an existing non-water-dependent structure, provided the use or

structure occupies one or more acres of (historic) tidelands. The expansion of South Station onto the USPS site (approximate 16-acre site) will occupy one or more acres of historic filled tidelands. The USPS parcel is located within historic filled tidelands.

**Alternative Layover Facility Sites:** Activities at the alternative layover sites will not meet or exceed MEPA review thresholds related to wetlands, waterways, or tidelands.

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? Yes; if yes, specify which permit:

As shown on the following table, activities at the South Station site will require state permits related to wetlands and tidelands; and activities at the Readville - Yard 2 site will require a state permit related to wetlands, pending a final site survey.

| Permit | Code of Massachusetts Regulation (CMR) | Threshold Trigger |
|---|---|---|
| **South Station Site** | | |
| Chapter 91 License | 310 CMR 9.04(2)<br>310 CMR 9.05(1)(c) | All filled tidelands, except for landlocked tidelands; Any structural alteration of fill or structures from the specifications contained in a valid grant or license. |
| Order of Conditions | 310 CMR 10.02(2)(b) | Activities proposed within 100 feet of a bank bordering on a waterbody. |
| **Readville - Yard 2 Site** | | |
| Order of Conditions | 310 CMR 10.02(2)(b)<br>310 CMR 10.02(1)(f) | Activities proposed within a Riverfront Area and within 100 feet of a bank bordering on a waterbody. |

Activities at the BTD Tow Lot site and the Beacon Park Yard site will not trigger state permits related to wetlands, waterways, or tidelands.

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

**II. Wetlands Impacts and Permits**

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? Yes; if yes, has a Notice of Intent been filed? X No Will the project require a Variance from the Wetlands regulations? No

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

**South Station Site:** Wetland resource areas located within or proximate to the South Station site boundary include the 100-foot buffer zone of the coastal bank (Fort Point Channel seawall) and land subject to coastal storm flowage. Dorchester Avenue is located within the 100-foot buffer zone of the coastal bank. As shown on Figure 8 in Attachment B, restoration activities, including extension of the Harborwalk, will be located within the buffer zone. Following a final site survey, it may be determined that activities at the South Station site will be located within land subject to coastal storm flowage. MassDOT will determine the extent and duration (permanent vs. temporary) of impacts following the final site survey, evaluation of alternatives, and further design.

**Alternative Layover Facility Sites:** Wetland resource areas located within or proximate to the Readville - Yard 2 site include the 100-foot buffer zone of the bank and 25-foot Riverfront Area of the Neponset River. Based on preliminary assessment, bordering land subject to flooding does not extend into the Readville - Yard 2 site boundaries. MassDOT will confirm the extent and duration of impacts following the final site survey and further design. Neither the BTD Tow Lot site nor the Beacon Park Yard site contains wetland resource areas.

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

**South Station Site:** Dorchester Avenue restoration and extension of the Harborwalk will consist of approximately 5 acres located within the buffer zone of the coastal bank. MassDOT will determine the extent and type of impact that South Station site activities will have on land subject to coastal storm flowage following the final site survey.

| Resource Areas/South Station Site | Area (square feet) or Length (liner feet) | Temporary or Permanent? |
|---|---|---|
| **Coastal Wetlands** | | |
| Land Under the Ocean | Not Applicable (N/A) | |
| Designated Port Areas | N/A | |
| Coastal Beaches | N/A | |
| Coastal Dunes | N/A | |
| Barrier Beaches | N/A | |
| Coastal Banks | Buffer zone impacts only | permanent |
| Rocky Intertidal Shores | N/A | |
| Salt Marshes | N/A | |
| Land Under Salt Ponds | N/A | |
| Land Containing Shellfish | N/A | |
| Fish Runs | N/A | |
| Land Subject to Coastal Storm Flowage | TBD pending final site survey | |
| **Inland Wetlands** | | |
| Bank | N/A | |
| Bordering Vegetated Wetlands | N/A | |
| Isolated Vegetated Wetlands | N/A | |
| Land Under Water | N/A | |
| Isolated Land Subject to Flooding | N/A | |
| Bordering Land Subject to Flooding | N/A | |
| Riverfront Area | N/A | |

**Readville - Yard 2 Site:** MassDOT will determine the extent and type of impact that activities will have on the 100-foot buffer zone and the 25-foot Riverfront Area following the final site survey.

| Resource Areas/Readville - Yard 2 Site | Area (square feet) or Length (liner feet) | Temporary or Permanent? |
|---|---|---|
| **Coastal Wetlands** | | |
| Land Under the Ocean | N/A | |
| Designated Port Areas | N/A | |
| Coastal Beaches | N/A | |
| Coastal Dunes | N/A | |
| Barrier Beaches | N/A | |
| Coastal Banks | N/A | |
| Rocky Intertidal Shores | N/A | |
| Salt Marshes | N/A | |

| Resource Areas/Readville - Yard 2 Site | Area (square feet) or Length (liner feet) | Temporary or Permanent? |
|---|---|---|
| Land Under Salt Ponds | N/A | |
| Land Containing Shellfish | N/A | |
| Fish Runs | N/A | |
| Land Subject to Coastal Storm Flowage | N/A | |
| **Inland Wetlands** | | |
| Bank | Buffer zone impacts only | TBD pending site design |
| Bordering Vegetated Wetlands | N/A | |
| Isolated Vegetated Wetlands | N/A | |
| Land Under Water | N/A | |
| Isolated Land Subject to Flooding | N/A | |
| Bordering Land Subject to Flooding | N/A | |
| Riverfront Area | TBD pending final site survey | |

D. Is any part of the project:
1. proposed as a **limited project**? No
2. the construction or alteration of a **dam**? No
3. fill or structure in a **velocity zone** or **regulatory floodway**? No
4. dredging or disposal of dredged material? No
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? No
6. subject to a wetlands restriction order? No
7. located in buffer zones? Yes; if yes, how much (in sf):

**South Station Site:** South Station site activities anticipated to be located within the 100-foot buffer zone of the coastal bank (Fort Point Channel seawall) include Dorchester Avenue restoration and extension of the Harborwalk, and will total approximately 218,000 square feet (5 acres), as shown on Figure 8 in Attachment B.

**Readville - Yard 2 Site:** The extent of activities to be located within the 100-foot buffer zone of the bank and 25-foot Riverfront area will be determined as design is advanced and following a final site survey.

E. Will the project:
1. be subject to a local wetlands ordinance or bylaw? No
2. alter any federally-protected wetlands not regulated under state law? No

**III. Waterways and Tidelands Impacts and Permits**

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? Yes; if yes, is there a current Chapter 91 License or Permit affecting the project site? Yes; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

Figure 6 in Attachment B presents copies of the historic shoreline maps used to determine the extent of filled tidelands relative to the SSX project.

**South Station Site:** The South Station site contains filled former tidelands that are subject to Chapter 91 filed under authority of numerous historic licenses. These historic licenses culminated in the issuance of License No. 2040 for filling the remainder of the South Station site for the construction of the terminal building and tracks, and License No. 2041for the construction of the Fort Point Channel seawall and Dorchester Avenue. Subsequent licenses were issued for the

construction of MassDOT Vent Building No. 1. The Chapter 91 Licenses identified in the following table are the primary licenses and pertain to the South Station site only.

**South Station Site Existing Chapter 91 Licenses**

| License No. | Licensee | Date | Scope |
|---|---|---|---|
| Massachusetts Harbor and Land Commissioner's License 2040 | Boston Terminal Company | 9/2/1897 | Placement of fill landward of Dorchester Avenue and construction of rail terminal. |
| Massachusetts Harbor and Land Commissioner's License 2041 | City of Boston (transferred to USPS) | 9/3/1897 | Construction of seawall, placement of fill and construction of Summer Street and Dorchester Avenue extensions. |
| Waterways License 6544 | Massachusetts Highway Department | 6/6/1997 | MassDOT Vent Building #1 (foundation only) |
| Waterways License 7733 | Massachusetts Highway Department | 7/30/1997 | MassDOT Vent Building #1 (above-ground structure only) |

**Alternative Layover Facility Sites:** None of the layover alternative sites contain filled tidelands that are subject to the Waterways Act (Chapter 91). There are no Chapter 91 Licenses associated with any of the layover alternative sites. While the BTD Tow Lot and Beacon Park Yard sites each contain filled tidelands, the tidelands are geographically isolated from existing flowed tidelands and meet the statutory definition of landlocked tidelands. The Readville - Yard 2 site is located adjacent to the Neponset River and approximately 8.6 miles upstream from its discharge into Boston Harbor. This reach of the river is upstream of two dams that have existed for many years and does not meet the regulatory criteria for flowed tidelands. The Neponset River adjacent to the site is regulated as a non-tidal river or stream, per 310 CMR 9.04(1)(e). Therefore the site does not contain any filled tidelands subject to Chapter 91.

A. Does the project require a new or modified license or permit under M.G.L.c.91? X Yes; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use?

Current: 44± acres (existing acreage, non-water-dependent use); Change: - 1± acre (approx.)

Total: 43± acres (proposed acreage, non-water-dependent use)

If yes, how many square feet of solid fill or pile-supported structures (in sf)? 0 No new solid fill or pile-supported structures will be located in flowed tidelands.

A Chapter 91 License will be required for the South Station site for work within historic filled tidelands. As shown in the following table, of the approximate 49-acre site, approximately 47 acres are historic filled and flowed tidelands and are subject to Chapter 91. Approximately 2 acres, comprised of a small area just north/northwest of the headhouse and railroad tracks extending to the NEC Main Line, are non-jurisdictional. Of the 47 jurisdictional acres, approximately 3 acres currently are for water-dependent uses, consisting of a portion of the Fort Point Channel and existing Harborwalk and park near the site's southern boundaries, and 44 acres are for non-water-dependent uses. The SSX project acreage dedicated to water-dependent uses will increase by approximately 1 acre due to the extension of the Harborwalk.

| South Station Site Chapter 91 Resource Areas | Current | Change | Total |
|---|---|---|---|
| Total Site | 49 acres | 0 | 49 acres |
| Non-Jurisdictional | 2 acres | 0 | 2 acres |
| **Jurisdictional (filled and flowed tidelands)** | **47 acres** | **0** | **47 acres** |
| Flowed Tidelands (Fort Point Channel) | 2 acres | 0 | 2 acres |

| South Station Site Chapter 91 Resource Areas | Current | Change | Total |
|---|---|---|---|
| Filled Tidelands | 45 acres | 0 | 45 acres |
| Water-Dependent Use<br>[310 CMR 9.12(2)(a) 2 and 4] | 3 acres<br>water & existing<br>Harborwalk/park | +1 acre<br>Harborwalk<br>extension | 4 acres |
| Non-Water-Dependent Use | 44 acres | -1 acre<br>Harborwalk<br>extension | 43 acres |

The increase in water-dependent uses at the site will occur in all Build alternatives. As the site design and alternatives evaluation are advanced, MassDOT will refine the total acreage of the project site that will be allocated for water-dependent use and non-water-dependent use.

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site: 45± acres (approximate)
Area of filled tidelands covered by buildings: 16.5± acres (approximate, refer to Table on Page 12)
For portions of site on filled tidelands, list ground floor uses and area of each use:

The existing South Station terminal, consisting of a 69,000-square foot transit concourse and 126,000 square feet of office space, will be expanded by approximately 215,000 square feet, for a total terminal size of approximately 410,000 square feet. Ground floor uses at the expanded South Station will include expansion of the passenger concourse station and passenger support services, including retail and office space, and station platforms. Following further design and alternatives analysis, MassDOT will refine the ground floor uses/areas proposed for each Build alternative.

Does the project include new non-water-dependent uses located over flowed tidelands? No X

Height of building on filled tidelands:

The height of buildings on filled tidelands will vary based on the Build alternative selected. As conceptually designed at this time, building height would range from 108 feet in Alternative 1 (height of historic facade) to 290 feet in Alternative 3.

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

Figure 5 in Attachment B shows the location of mean high water (MHW), mean low water (MLW), and water-dependent use zones associated with the SSX project. Figure 6 shows the historic high and low water marks. Figures 7, 8, and 9 show conceptual designs of uses at the South Station site. Alternative 1 would consist of transportation improvements and Dorchester Avenue restoration, including extension of the Harborwalk. The transportation improvements and Dorchester Avenue restoration also would occur in Alternatives 2 and 3. Proposed private development in Alternatives 2 and 3 would consist of approximately 30 percent residential uses, 30 percent commercial uses, and 40 percent hotel/mixed-uses. The location of uses within building on tidelands, including facilities dedicated for public use, in Alternatives 2 and 3 would be determined following further design.

D. Is the project located on landlocked tidelands? Yes; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

**South Station Site:** In the existing condition, South Station site is not located on landlocked

tidelands. The Dorchester Avenue extension, which separates Fort Point Channel from the existing USPS facility, is owned in fee by the USPS, but a major portion of the roadway is not open to the public for vehicular or pedestrian use. Accordingly, this section of Dorchester Avenue does not meet the definition of a public way, per 310 CMR 9.02, and does not create landlocked tidelands.

In the future condition, the South Station site may be considered to be located on landlocked tidelands for future development associated with the SSX project. Section 85 of Chapter 235 of the 2000 Acts of Massachusetts General Court created a special exception under Chapter 91 to facilitate redevelopment on air-rights above intermodal transportation facilities that would be located on landlocked tidelands, but for the abandonment of an historic public way. The statute creates landlocked tidelands at the South Station site for potential development, to be located 250 feet landward of the existing MHW of the Fort Point Channel. This statute requires MassDEP to consider Dorchester Avenue as a public way with respect to the previously-approved South Station Air Rights Project, and subsequent air-rights development located 250 feet landward of MHW. Pending review and confirmation with MassDEP, this statute could apply to future development at the South Station site.

With all Build alternatives, the SSX project will improve the public's right to access, use and enjoy jurisdictional tidelands. It will restore Dorchester Avenue for public and station access, including improving the streetscape and pedestrian, bicycle, local transit and vehicular facilities in and around the station to create an enhanced pedestrian and community environment. The SSX project will extend the Harborwalk along the reopened Dorchester Avenue. The Harborwalk extension, proposed in all Build alternatives, will complete the long-awaited last remaining gap in a continuous waterfront walkway in downtown Boston. The SSX project will comply with the open space and shoreline utilization requirements of Chapter 91 (310 CMR 9.51 through 310 CMR 9.53) to the extent applicable. The transportation improvements portion of the SSX project will comply with the Chapter 91 standards for non-water dependent infrastructure projects (310 CMR 9.55). Pending the selection of the preferred alternative, future private development (Alternative 3) could require an amendment to the Fort Point Downtown Waterfront Municipal Harbor Plan.

MassDOT will address potential impacts to the public realm from wind and shadow associated with Alternatives 2 and 3. Alternatives 2 and 3 would consider a range of building envelopes adjacent to and over the expanded South Station potentially reaching up to 290 feet. To assess any potential ground level impacts to the pedestrian environment from this additional height, MassDOT will provide a quantitative wind analysis, including wind tunnel testing. The quantitative analysis also will consider potential wind impacts to new and existing open spaces, a Harborwalk extension along the Fort Point Channel, and other potential public realm impacts. MassDOT will assess shadow impacts from the two joint/private development alternatives (Alternative 2 [zoning-compliant] and Alternative 3) by comparing the private development to existing shadow conditions. The analysis will compare the shadow conditions of all three scenarios, hourly from 9:00 am to 5:00 pm for the "shoulder seasons" represented by October 23rd. The Draft EIR will contain the results of the wind and shadow analyses.

**Alternative Layover Facility Sites:** The BTD Tow Lot site and the Beacon Park Yard site contain filled tidelands that are geographically isolated from existing flowed tidelands and meet the statutory definition of landlocked tidelands. The filled tidelands at each site are located more than 250 feet from existing flowed tidelands and are separated from flowed tidelands by at least one public way that was in existence on January 1, 1984. In the vicinity of the BTD Lot site, West 4th Street has existed in substantially the same alignment for many years, initially as a bridge, then as a road on solid fill by 1969, which exists today. In the vicinity of the Beacon Park Yard site, Storrow Drive and the Massachusetts Turnpike separate the flowed tidelands of the Charles River from filled tidelands. No filled tidelands exist at the Readville - Yard 2 site.

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? No

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? Yes; *(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)*

MassDOT will provide a request for a Public Benefit Review and Determination, which will be included in the Draft EIR. The request will include a discussion of the following: purpose and effect of the SSX project; impact of the SSX project on abutters and the surrounding community; enhancement to the property; benefits to the public trust rights in tidelands; community activities on the South Station site; environmental protection and preservation; and public health, safety, and general welfare.

G. Does the project include dredging? No

**IV. Consistency:**

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? Yes; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

With the exception of a portion of track along the NEC Main Line, the entirety of the South Station site is located within the coastal zone. The BTD Tow Lot site is located within the coastal zone. Neither the Beacon Park Yard site nor the Readville - Yard 2 site are located within the coastal zone. Figure 5 in Attachment B presents the location of the coastal zone in the SSX project vicinity.

The SSX project will require Federal Consistency Certification because of the federal funding through the FRA. Chapter 91 requires consistency with MassCZM's policies and principles for projects requiring a new or amended Chapter 91 Waterways License (310 CMR 9.54). An assessment of the SSX project's consistency with MassCZM policies will be included in the Draft EIR.

B. Is the project located within an area subject to a Municipal Harbor Plan? Yes; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

**South Station Site:** A portion of the South Station site is located within the Fort Point Downtown Waterfront Municipal Harbor Planning Area, for which Phase 1 and Phase 2 Municipal Harbor Plans (MHPs) have been approved (March 8, 2004). The MHPs establish the planning area boundaries and outline planning principles for the Fort Point Downtown Waterfront Municipal Harbor Planning Area. Through a Municipal Harbor Plan amendment, the regulatory standards may be amended, provided the substitute provisions are consistent with the mandate of Chapter 91 to protect and preserve the rights of Commonwealth residents to the tidelands. The substitute provisions also would provide equivalent public benefits to those that would be gained through the standard provisions, known as off-setting provisions. With Alternative 3, the SSX project would require an amendment of the Fort Point Downtown Waterfront MHP to provide flexibility from Chapter 91 standards preliminarily related to building height, open space, ground floor uses, and setback from the shoreline.

**Alternative Layover Facility Sites:** None of the layover alternative sites is located within an area subject to a municipal harbor plan.

## WATER SUPPLY SECTION

**I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? No

B. Does the project require any state permits related to **water supply**? No

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**.

## WASTEWATER SECTION

**I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? No

B. Does the project require any state permits related to **wastewater**? Yes; if yes, specify which permit:

> A Compliance Certification (BRP WP 72/BRP WP 73) will be required from MassDEP for an increase in flow to an existing connection at the South Station Site. Certifications may be required for increases in flow to existing connections at the layover alternative sites.

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

**II. Impacts and Permits**

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

> The following table provides an approximate wastewater generation volume for the South Station site, based upon conceptual design and the highest anticipated volume (Alternative 3). Minimal wastewater generation is anticipated with the layover alternative sites, limited to use associated with employees and train crews.

| Wastewater Generation: South Station Site | Existing | Change | Total |
|---|---|---|---|
| Discharge of sanitary wastewater | 31,000 | 567,000 | 598,000 |
| Discharge of industrial wastewater | N/A | N/A | N/A |
| TOTAL | 31,000 | 567,000 | 598,000 |
| | | | |
| Discharge to groundwater | N/A | N/A | N/A |
| Discharge to outstanding resource water | N/A | N/A | N/A |
| Discharge to surface water | N/A | N/A | N/A |
| Discharge to municipal or regional wastewater facility | 31,000 | 567,000 | 598,000 |
| TOTAL | 31,000 | 567,000 | 598,000 |

B. Is the existing collection system at or near its capacity? No;

if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? No

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

The SSX project will not require an interbasin transfer of wastewater.

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? No

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

The SSX project will include water conservation measures. In support of the GreenDOT Implementation Plan's sustainability goals, MassDOT will investigate the following: fixture retrofit and use of innovative dual plumbing systems in the expanded South Station; options to increase the amount of permeable surfaces/infiltration, reduce stormwater volumes, and use BMPs in construction and operation; and use of native and low maintenance vegetation for the streetscape improvement plan.

**III. Consistency**

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

The SSX project will adhere to BWSC's rules and regulations, including design and construction in conformance with current BWSC standards and specifications, and development of a stormwater management plan and sediment and erosion control plan. As required, MassDOT will obtain permits for wastewater and storm drainage connections, in accordance with BWSC and MassDEP requirements. Tables 1 and 3 in the ENF identify state and local permits required for the SSX project.

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? No

## TRANSPORTATION SECTION (TRAFFIC GENERATION)

**I. Thresholds / Permit**

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? Yes; if yes, specify, in quantitative terms:

Based on a preliminary traffic analysis, Alternative 3 as conceptually defined at this time would exceed review thresholds per 301 CMR 11.03(6)(a)6: Generation of 3,000 or more new average daily traffic (ADT) on roadways providing access to a single location. MassDOT will conduct a detailed traffic analysis of the project alternatives.

B. Does the project require any state permits related to **state-controlled roadways**? Yes; if yes, specify which permit:

**South Station Site:** Modifications may be required along Atlantic Avenue, the South Station Connector, and Bus Terminal ramps, involving physical modification to a state highway layout, which could require a State Highway Access Permit.

**Alternative Layover Facility Sites:** The alternative layover sites are located near state-controlled highways; it is anticipated that state permits may be required for modification to access these state-controlled roadways. The BTD Tow Lot site is located off I-93. The Beacon Park Yard site is located adjacent to I-90. The Readville Yard – 2 site is located near Truman Highway.

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

**II. Traffic Impacts and Permits**
**(applicable to the South Station Site only)**

The following information applies to the South Station site and is based on a preliminary traffic analysis. MassDOT will conduct a transportation analysis to refine the anticipated vehicle trips shown for the Build alternatives. Additional traffic for the layover alternative sites is anticipated to be negligible, limited primarily to trips associated with employees.

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

| South Station Build Alternatives | Existing[1] | Change[2] | Total |
|---|---|---|---|
| *Alternative 1 – Transportation Improvements Only* | | | |
| Parking Spaces | 465 | -44 | 421 |
| Vehicle Trips per Day | 5,400 | negligible | 5,400 |
| ITE Land Use Code | Not available for transit hub | | |
| *Alternative 2 – Joint/Private Development Minimum Build* | | | |
| Parking Spaces | 465 | 228 | 693 |
| Vehicle Trips per Day | 5,400 | 1,600 | 7,000 |
| ITE Land Use Code(s) | Not available for transit hub | 230 - Residential condominium/townhouses<br>820 – Shopping center<br>310 – Hotel<br>710 – General office building | |
| *Alternative 3 – Joint/Private Development Maximum Build* | | | |
| Parking Spaces | 465 | 1,128 | 1,593 |
| Vehicle Trips per Day | 5,400 | 4,500 | 9,900 |
| ITE Land Use Code(s) | Not available for transit hub | 230 - Residential condominium/townhouses<br>820 – Shopping center<br>310 – Hotel<br>710 – General office building | |

Notes:
[1] Existing conditions determined as follows:

- Total of 465 existing parking spaces = 223 spaces at Bus Terminal + 242 spaces at USPS facility (198 underground spaces and 44 surface spaces).
- Total of 5,400 vehicles trips per day (vpd) is sum of:

  1,500 vpd: Atlantic Avenue curbside pick-up/drop-off (non-commercial)
  1,900 vpd: Atlantic Avenue curbside taxicabs and commercial vehicles

1,430 vpd: Bus Terminal - Parking Deck (including drop-off, pick-up, and deliveries)
570 vpd: Bus Terminal - Bus depot (regional bus activity)

[2] Change associated with Build alternatives determined with the following assumptions:

- Alternative 1 would have minimal additional vehicle traffic since it would consist of transportation improvements only with no development component.
- Alternative 2 would include 850,000 sf of developable space with parking for 470 vehicles (net new parking is 228 spaces assuming elimination of 44 USPS facility surface spaces and retention of 198 USPS facility underground spaces).
- Alternative 3 would include 2.5 million sf of developable space with parking for 1,370 vehicles (net new parking is 1,128 spaces assuming elimination of 44 USPS facility surface spaces and retention of 198 USPS facility underground spaces).
- Assumed land use breakdown for Alternatives 2 and 3 is 30 percent residential, 30 percent commercial, 40 percent hotel/mixed-use.
- Reductions in parking spaces for shared parking opportunities from complementary uses (e.g. office and residential) were not accounted for in Alternatives 2 and 3.
- Rates provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual and ITE Parking Generation Manual were used to estimate vehicle trips and parking demands. Mode split and vehicle occupancy rates were used from Boston's City Wide Transportation Plan (Access Boston 2000 – 2010) and the 2008 American Commuter Survey.

B. What is the estimated average daily traffic (ADT) on roadways serving the site?

| Roadway Serving South Station | Existing vpd | Change | Total vpd |
|---|---|---|---|
| Atlantic Avenue north of Kneeland Street | 13,600 | +800 | 14,400 |
| Summer Street east of Atlantic Avenue | 20,800 | +2,300 | 23,100 |
| Dorchester Avenue north of W. 2nd Street | 3,800 | +3,500 | 7,300 |

Note:

[1] Change shown for Alternative 3 (highest range), determined using preliminary massing and land use percentages as described in Note 2 above. Vehicle traffic was distributed to the roadway system using existing travel patterns and preliminary analysis of traffic shifts associated with a reopened Dorchester Avenue. The change in ADT on roadways serving the site accounts for project-related trips associated with the joint/private development and reopening of Dorchester Avenue.

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

MassDOT will determine mitigation measures following completion of the transportation analysis.

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

The SSX project will increase the rail capacity of South Station, which will directly promote increased transit use for local and intercity travel. The SSX project also will include vehicular, bicycle and pedestrian access plans. Dorchester Avenue will be restored for public and station access, and will include landscaping and improved pedestrian and bicycling connections and facilities, including sidewalks, crosswalks, and bicycle lanes. The SSX project will reconnect Dorchester Avenue to Summer Street. As currently envisioned, restoration of Dorchester Avenue will include an extension of the Harborwalk along a portion of the Fort Point Channel that is currently prohibited for public access. Reopening Dorchester Avenue will provide the MBTA with an opportunity to reroute city buses to provide more direct bus connections to downtown Boston. Further, MassDOT will consider the potential for an enhanced bicycle sharing facility at an expanded South Station.

E. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? X Yes; if yes, describe if and how will the project will participate in the TMA:

The Seaport TMA provides transportation demand management (TDM) services in the South Boston Waterfront area. The ABC (A Better City) TMA provides TDM services in the Downtown/Back Bay area. MassDOT will discuss the role of the SSX project with respect to areawide TMAs in the Draft EIR.

F. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? Yes; if yes, generally describe:

The project will use and occur in the immediate vicinity of rail transportation facilities. Figure 2 in Attachment B presents the location of existing major transportation facilities in the vicinity of the SSX project.

**South Station Site:** Existing activities at the South Station site include both rail and bus terminals with service by Amtrak, the MBTA, and bus carriers providing intercity and regional connections. The SSX project will expand the South Station terminal facilities, including the addition of up to 7 tracks and platforms and construction of a new passenger concourse.

**Alternative Layover Facility Sites:** Additional rail layover space is required to support existing and future intercity and commuter rail service needs. The following three alternative layover facility sites are being evaluated to meet these needs:

**BTD Tow Lot Site:** The BTD Tow Lot site is located in the immediate vicinity of Amtrak and MBTA railroad layover facilities, including Amtrak's Southampton Street Yard and Front Yard and the MBTA's South Side Service and Inspection Facility, with access to the MBTA Fairmount Line/Old Colony Railroad line. Use of this site as a layover would require relocation of the existing tow lot and construction of layover infrastructure, including up to ten tracks, accommodating ten consists.

**Beacon Park Yard Site:** The Beacon Park Yard site, with access to the MBTA Framingham/Worcester Line, has served for many years as a major freight rail yard and intermodal terminal in Boston for CSXT. Today, the freight functions are in transition with most CSXT intermodal services to be relocated to central Massachusetts in 2013. Once those functions are yielded up, this site would allow the MBTA to maintain a double track MBTA main line, construct a four-track layover yard on the MBTA railroad easement (which occupies approximately 12.5 acres of the site, with space for up to 12 consists), and utilize an approximate 10-acre area over which MassDOT maintains an option to acquire an easement for the purpose of developing an intermodal facility for freight to, from, or through the Port of Boston. It is anticipated that the MBTA easement portion of this site will be used for layover purposes before the start of the SSX project. With both the MBTA easement and the MassDOT option areas, this site would provide space for a total of ten tracks, accommodating 30 consists. Because the MassDOT option area is reserved for unrelated purposes, additional rights beyond what MassDOT now has would be necessary to accomplish this outcome. Additional rights may also be necessary within the MBTA easement area depending upon the ultimate use and functions decided upon. MassDOT and the MBTA have had preliminary discussions with the property owner and intend to begin negotiations on this issue in the near future. MassDOT and the MBTA will also coordinate the evaluation of this site with other MassDOT-related needs in the area.

**Readville – Yard 2 Site:** The Readville - Yard 2 site is an active MBTA layover facility with maintenance and repair operations. The site is located northeast of the MBTA's Readville station, with direct access to the MBTA Fairmount Line and the Franklin Line. Expansion of this yard would include construction of layover infrastructure including the addition of up to eight tracks, accommodating eight consists.

G. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

Planning for potential private development will account for Logan Airport approach airspace, and it is not anticipated that any of the South Station Terminal/Joint Development Build alternatives will penetrate the approach space of Logan Airport. Therefore, it is not anticipated that the SSX project will require filings with the Federal Aviation Administration (FAA). The project will seek guidance and/or a determination from FAA regarding hazards to air navigation and the submission of FAA Form 7460-1, Notice of Proposed Construction or Alteration.

### III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

MassDOT has worked and will continue to work with various agencies and stakeholders to develop the SSX project in a manner that is consistent with applicable plans and policies to the greatest extent practicable. The following Transportation Section (Roadways and other Transportation Facilities) presents a summary of the SSX project's approach to comply with key transportation plans and policies.

## TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

### I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? Yes

As conceptually defined at this time, Alternative 3 would exceed review thresholds per 301 CMR 11.03(6)(a)7: Construction of 1,000 or more new parking spaces at a single location. MassDOT will conduct a detailed traffic analysis of the project alternatives, which will be included in the Draft EIR.

B. Does the project require any state permits related to **roadways or other transportation facilities**? Yes; if yes, specify which permit:

**South Station Site:** Modifications may be needed along Atlantic Avenue, the South Station Connector, and Bus Terminal ramps, involving physical modification to a state highway layout, which could require a State Highway Access Permit.

**Alternative Layover Facility Sites:** Modifications to access state-controlled highways may be needed at one or more layover alternative sites, requiring a State Highway Access Permit. MassDOT will finalize permit requirements as the design is advanced, and will address permitting requirements in the Draft EIR.

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

### II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

Figure 2 in Attachment B presents the location of existing major transportation facilities in the vicinity of the SSX project.

**South Station Site:** South Station is the terminus of Amtrak's NEC service and Amtrak's Lake Shore Limited service from Chicago via Albany. South Station also serves as the terminus for the western and southern lines of the MBTA's commuter rail system. It provides connections to the MBTA Red Line and to Logan International Airport via the MBTA Silver Line. Existing activities at the South Station site include rail and bus terminals with service by Amtrak, the MBTA, and bus carriers providing intercity and regional connections. The SSX project will expand the South Station terminal facilities, including the addition of up to 7 tracks and platforms and construction of a new passenger concourse. Modifications also may be required along Atlantic Avenue, the South Station Connector, and Bus Terminal ramps.

**Alternative Layover Facility Sites:** Additional rail layover space is required to support existing and future intercity and commuter rail service needs. The following three alternatives layover sites are being evaluated to meet these needs:

**BTD Tow Lot Site:** The BTD Tow Lot site is located in the immediate vicinity of Amtrak and MBTA railroad layover facilities, including Amtrak's Southampton Street Yard and Front Yard and the MBTA's South Side Service and Inspection Facility, with access to the MBTA Fairmount Line/Old Colony Railroad line. Use of this site as a layover would require relocation of the existing tow lot and construction of layover infrastructure, including up to ten tracks, accommodating ten consists.

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**Readville – Yard 2 Site:** The Readville - Yard 2 site is an active MBTA layover facility with maintenance and repair operations. The site is located northeast of the MBTA's Readville station, with direct access to the MBTA Fairmount Line and the Franklin Line. Expansion of this yard would include construction of layover infrastructure including the addition of up to eight tracks, accommodating eight consists.

B. Will the project involve any:

1. Alteration of bank or terrain (in linear feet)? No.
2. Cutting of living public shade trees (number)? No.
3. Elimination of stone wall (in linear feet)? No.

**III. Consistency**

Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

The SSX project is consistent with federally-sponsored plans and policies, state-sponsored, plans and policies, regional plans and policies, and local planning efforts related to transit, traffic, pedestrian, and bicycle transportation facilities and services. The SSX project's consistency with ***Paths to a Sustainable Region,*** the Long-Range Transportation Plan (LRTP) for the Boston region, is summarized on Pages 18 - 19. The following is a summary of the SSX project's consistency with other key federal, state, and regional transportation planning documents:

- ***Northeast Corridor (NEC) Infrastructure Master Plan*** was prepared in May 2010 by the Northeast Corridor Master Plan Working Group, a consortium of representatives from 12 northeast states, the District of Columbia, 8 commuter and 3 freight railroads, working collaboratively with Amtrak and the FRA. The SSX project will meet two capital programs that the *Master Plan* calls for to address congestion/capacity needs along the Northeast Corridor: Program #114, Boston South Station Track Capacity Improvements, adding up to six station tracks; and Program #675, Boston New Layover Yard Facility, location to be determined.

- ***A Vision for High-Speed Rail in the Northeast Corridor*** was prepared by Amtrak in September 2010 with an update in July 2012. The SSX project will be consistent with Amtrak's objectives for the NEC Capital Investment Program, including objectives to: improve reliability and quality of service throughout the NEC; improve and expand regional mobility along the NEC and the communities it services through increased capacity and expanded rail service; and improve existing NEC assets and add capacity for all users, including intercity, commuter and freight operators. Further, Amtrak's proposal for a Hub City Station for Boston will be designed to be consistent with "MassDOT's ongoing South Station Expansion Project."

- ***Massachusetts Rail Plan, September 2010.*** *The Massachusetts Rail Plan* identifies the Northeast Corridor (NEC) as a top priority for passenger rail in the state, and the SSX project as a priority rail project which will accomplish the following:

  - Help foster the growth in high-speed and other intercity service throughout the Northeast;
  - Improve service to the southern communities along the MBTA Commuter Rail line;
  - Facilitate potential new passenger services along the Boston to New York corridor along the Inland Route (the designated HSIPR corridor servicing the metropolitan areas of Worcester and Springfield, MA and New Haven, CT); and
  - Allow for planned expansion of the MBTA Commuter Rail service that predicts growth on nearly all the lines connecting to South Station.

- ***Massachusetts Freight Plan, September 2010.*** *The Massachusetts Freight Plan* identifies two areas associated with freight rail constraints which reference South Station and the need for the SSX project to alleviate main line capacity constraints and yard infrastructure and connectivity

constraints. Major main line capacity constraints not related to vertical clearance or rail car weight capacity include Beacon Park to South Boston: due to a recent increase in passenger service and reconfiguration of tracks in the South Station area for passenger services, the *Massachusetts Freight Plan* identifies restricted access to South Boston freight facilities. The *Massachusetts Freight Plan* also identifies yard capacity constraints at South Station, citing the need to expand passenger station tracks and approach track to support major planned service expansions such as South Coast Rail, Inland Route, and Acela trips.

- ***Massachusetts Bicycle Transportation Plan, September 2008.*** The SSX project will be consistent with the recommendations of the *Massachusetts Bicycle Transportation Plan* to extend the Harborwalk and create multi-modal connections. As part of the SSX project, the reconstruction of Dorchester Avenue will include an extension of the Harborwalk to create better multi-modal connections along the eastern edge of South Station. The Harborwalk provides a connection point for two existing and proposed Bay State Greenway (BSG) corridors: the Boston—Cape Cod Corridor (BCCC) and the Merrimack River—Charles River Corridor (MRCRC). The proposed extension of the Boston Harborwalk will facilitate the extension and development of the BSG network.

- ***MBTA Program for Mass Transportation, December 2009, including the Capital Investment Program (CIP).*** Service enhancement and system expansion projects related to South Station and the SSX project are identified in the *MBTA Program for Mass Transportation (PMT)* for the Central Area, and three radial travel corridors: the West Corridor, the Southwest Corridor, and the Southeast Corridor. The *PMT* specifically cites capacity problems at South Station as a transit improvement challenge: "Stub-end commuter rail terminals seriously restrict the maximum number of train operations, and South Station is steadily approaching the point at which it will not be able to accommodate additional peak-period trains." Proposed service enhancement/system expansion projects identified for the Central Area include additional tracks at South Station to address the demand for peak-period track capacity resulting from the expansion of the south side commuter rail system. The *PMT* indicates that meeting the need for additional capacity, via the addition of six tracks at South Station, would be a key element of projects such as the expansion of commuter rail service to Fall River and New Bedford. The *CIP for FY 2013- FY 2017* identifies a number of service enhancement and system expansion projects which impact existing capacity at South Station, including the Fairmount Line improvements, South Coast Rail, and Worcester Line improvements, thereby indicating a need for an expanded South Station to accommodate increases in service levels.

## ENERGY SECTION

**I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? No
B. Does the project require any state permits related to **energy**? No
C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**.

## AIR QUALITY SECTION

**I. Thresholds**

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? No
B. Does the project require any state permits related to **air quality**? No
C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section.**

## SOLID AND HAZARDOUS WASTE SECTION

**I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? No

B. Does the project require any state permits related to **solid and hazardous waste**? Yes
If yes, specify which permit:

Given the historical usage of the South Station Site, as well as the previous and existing usage of the alternative layover facility sites, it is likely that SSX project activities will trigger reviews relative to the Massachusetts Contingency Plan (310 CMR 40.0000). Following further design, including completion of site sampling programs in preliminary design, MassDOT will determine permit requirements related to solid and hazardous waste at the South Station site and the layover alternative sites.

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

**II. Impacts and Permits**

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? No

No permanent storage, treatment, processing, combustion or disposal of solid waste currently occurs at South Station, nor will it occur at South Station or the three layover alternative sites as part of the SSX project. Storage of solid waste is currently limited to temporary storage of typical commercial waste, which also will occur following implementation of the project.

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? No

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

The SSX project will generate solid waste during demolition of the USPS facility. It is anticipated that the development of the layover sites also will generate solid waste due to demolition of existing facilities. MassDOT will develop a demolition plan for the USPS facility and other facilities as needed. The demolition plan will be incorporated within the project construction management plan. Construction management will be conducted following City of Boston Environment Department guidelines to the extent possible.

The demolition plan will include alternatives for recycling materials. Demolition debris will be segregated and recycled to the extent possible. Asphalt, brick and concrete will be processed and used for fill. Metal will be separated and recycled for scrap. MassDOT will discuss recycling goals for solid waste generated during the SSX project in the Draft EIR. Disposal of asbestos-containing materials and other hazardous material, as applicable, will be handled in accordance with MassDEP and U.S. EPA requirements.

D. If the project involves demolition, do any buildings to be demolished contain asbestos? Yes

Based on a site walk-through and initial evaluation of the USPS general mail facility, there is asbestos in various materials throughout the facility. Demolition of the facility will disturb asbestos containing materials. MassDOT will comply with applicable federal and state regulations regarding ACM, including the NESHAP regulations (40 CFR Part 61) and MassDEP asbestos regulations at 310 CMR 7.15. A sampling and analysis work plan and recommendations for response actions will

be developed prior to facility demolition. MassDOT will incorporate a demolition plan within the project construction phasing plan, a draft of which will be included in the Draft EIR. Prior to asbestos abatement activities at the USPS facility, asbestos notifications will be submitted to MassDEP and DOS, per 310 CMR 7.15 and 453 CMR 6.12.

Demolition also may be required at one or more layover alternative sites for construction of layover facilities. Pending facility evaluations, demolition of existing facilities may disturb asbestos containing facilities. Prior to demolition activities, sampling and analysis work plans and recommendations for response actions will be developed. MassDOT will address demolition requirements, including requirements for addressing asbestos containing materials, in the Draft EIR.

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

MassDOT will address the SSX project's solid and hazardous waste impacts during preparation of the construction management and demolition plan. Measures will be taken to control dust and demolition activities at the demolition/construction site. Trucks carrying demolition debris or other material off-site will be covered, per MGL Chapter 85, Section 36. MassDOT and its contractors will comply with MassDEP's Diesel Retrofit Program (DRP), and the State's Low Sulfur Diesel standards (310 CMR 7.05) will be met. Construction equipment will be required to comply with the Massachusetts vehicle idling regulation [310 CMR 7.11(1)(b)], which limits engine idling time. MassDOT will use the City of Boston Department of Environment's Guidelines for Construction as a resource for minimizing environmental impacts of the SSX project.

## III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

The Massachusetts 2010-2020 Solid Waste Master Plan identifies the following goals for 2020:

- Reduce annual solid waste disposal 30 percent, through source reduction, material reuse, recycling, composting and using source separated materials as fuels, or other beneficial uses of materials.
- Continue to strive to divert toxic substances from the solid waste stream.

The SSX project's demolition activities will comply with the goals of the Massachusetts Solid Waste Master Plan. To the maximum extent possible, solid waste generated during the demolition of the USPS facility, and other facilities as required, will be segregated and recycled. Asphalt, brick and concrete will be processed and used as fill. Metal will be separated and recycled for scrap. In support of the sustainability goals of the GreenDOT Implementation Plan, MassDOT will establish recycling percentage goals to decrease the amount of waste generated during demolition and construction.

SSX project demolition and construction activities will be conducted in support of the MassDOT's goal to reduce exposures to hazardous waste as documented in the GreenDOT Implementation Plan. Prior to any demolition activities, facility walk-throughs will be conducted and sampling work plans will be developed and implemented to identify potential hazardous materials and Universal Wastes, including PCBs, lead paint, fluorescent light tubes, light ballasts, chlorofluorocarbons (CFCs) and refrigerants associated with heating, ventilation, and air conditioning (HVAC) systems, mercury switches, emergency light batteries, and exit signs, etc. As needed, response actions will be taken to

divert toxic substances from the solid waste stream prior to demolition activities.

## HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

**I. Thresholds / Impacts**

A. Have you consulted with the Massachusetts Historical Commission? No

MassDOT will consult with the Massachusetts Historical Commission (MHC) in accordance with M.G.L. Chapter 9, Sections 26-27C (950 CMR 71.00) and Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800) as necessary to assess potential impacts to significant historic resources. If impacts associated with the SSX project are unavoidable, MassDOT will work with MHC and interested parties, such as the BLC, to develop appropriate measures to minimize or mitigate impacts to historic resources.

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? Yes; if yes, does the project involve the demolition of all or any exterior part of such historic structure? Yes; if yes, please describe:

**South Station Site:** The South Station site includes the South Station Headhouse and Waiting Room, both of which are listed in the State and National Registers of Historic Places. The South Station headhouse was constructed in 1898. It was designed by the nationally-recognized architectural firm of Shepley, Rutan and Coolidge. The South Station site also includes the USPS General Mail Facility/South Postal Annex, included in the Inventory of Historic and Archaeological Assets of the Commonwealth. The SSX project includes the demolition of the USPS General Mail Facility/South Postal Annex.

The South Station site is located in the vicinity of other historic resources listed in the State and/or National Registers of Historic Places or listed in the Inventory of Historic and Archaeological Assets of the Commonwealth. The following table presents above-ground historic resources located in the vicinity of the South Station site. Figure 3, Sheet 1 in Attachment B presents historical resources in the vicinity of South Station.

**South Station Vicinity Historic Resources**

| Historic Resource | Address |
|---|---|
| ***State and/or National Registers - Listed Properties*** | |
| South Station Head House | 620-690 Atlantic Avenue |
| Leather District | Atlantic Avenue, Surface Artery, Kneeland Street |
| Fort Point Channel Historic District | Fort Point Channel seawalls, Northern Avenue Bridge, Seaport Boulevard, Stillings, Midway, and A Streets and Necco Court |
| Fort Point Channel Landmark District[1] | Summer, Congress, A and adjoining Streets |
| Commercial Palace Historic District | Bedford, Summer, Franklin, Hawley and Chauncy Streets |
| Bay Village Historic District[1] | Piedmont, Winchester, Melrose, Fayette and Tremont Streets |

| Historic Resource | Address |
|---|---|
| ***State and/or National Registers - Listed Properties*** | |
| South End National Register District | Pen Central Railroad, Massachusetts and Harrison Avenues, East and West Brookline, Tremont, Upton, Malden and Union Park Streets, Shawmut Avenue, Dwight and Berkeley Streets |
| South End Landmark District[1] | Penn Central Railroad, Camden Street, Harrison Avenue, East Berkeley and Tremont Streets |
| ***Inventory of Historic and Archaeological Assets of the Commonwealth - Listed Properties*** | |
| United State Post Office General Mail Facility | 25 Dorchester Avenue |
| Stone and Webster Building | 245 Summer Street |
| Federal Reserve Bank | 556 Atlantic Avenue |
| Weld Building | 265 Purchase Street |
| John Wells Row Houses | Oak Street, Harrison Avenue, Pine Street, Maple Place, Johnny Court |
| South End Industrial District | Herald, Albany, Union Park, Washington Streets, Shawmut Avenue |
| South End Landmark District Protection Area[1] | Penn Central Railroad; Tremont, East Berkeley, Washington Streets; Harrison Avenue, Northampton and Washington Streets, Massachusetts Avenue Connector, Southeast Expressway |

Note:
[1] Designated as City of Boston Historic District

**BTD Tow Lot Site:** There are no historic buildings or structures listed in the State or National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth located within the BTD Tow Lot site boundaries or in the vicinity of the site.

**Beacon Park Yard Site:** There are no historic buildings or structures listed in the State or National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth located within the Beacon Park Yard site boundaries. The Beacon Park Yard site is located in the vicinity of historic resources listed in the State and National Registers and included in the Inventory of Historic and Archaeological Assets of the Commonwealth, as shown in the following table. Figure 3, Sheet 2 in Attachment B presents historical resources in the vicinity of the Beacon Park Yard site.

**Beacon Park Yard Layover Facility Vicinity**

| Historic Resource | Address |
|---|---|
| ***State and National Registers of Historic Properties - Listed Properties*** | |
| Harvard Avenue Historic District | Allston, Commonwealth, Harvard, and Park Vale Avenues, Cambridge and Linden Streets |
| Charles River Basin Historic District | Both banks of the Charles River from the Eliot Bridge to the Charles River Dam |

| Historic Resource | Address |
|---|---|
| ***Inventory of Historic and Archaeological Assets of the Commonwealth - Listed Properties*** | |
| Henry W. Longfellow House | 4 Wadsworth Street |
| Ashford Street Area | 5-69 and 6-52 Ashford Street |
| Boston University Physical Plant Building/ Electric Storage Battery Company | 120 Ashford Street |
| Boston University Claflin, Sleeper, and Rich Halls Courtyard | 275 Babcock Street |
| Boston University Classroom Building/Boston Buick Co. Garage – Demolished | 278 Babcock Street |
| Boston University Athletics Department Building/Pittsburgh Plate Glass Co. | 300-316 Babcock Street |

**Readville - Yard 2 Site:** There are no historic buildings or structures listed in the State or National Registers of Historic Places located within the Readville - Yard 2 site boundaries. The Readville - Yard 2 site is located within an historic resource listed the Inventory of Historic and Archaeological Assets of the Commonwealth, and it as located in the vicinity of State and National Register-listed properties, as shown in the following table. Figure 3, Sheet 3 in Attachment B presents historical resources in the vicinity of the Readville - Yard 2 site.

**Readville - Yard 2 Layover Facility Vicinity**

| Historic Resource | Address |
|---|---|
| ***State and National Registers of Historic Properties - Listed Properties*** | |
| Truman Parkway | -- |
| Neponset Valley Parkway | -- |
| ***Inventory of Historic and Archaeological Assets of the Commonwealth - Listed Properties*** | |
| Readville Industrial Area | -- |

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? No

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

**II. Impacts**

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

The SSX project is being designed to accommodate the growth of passenger rail traffic at South Station. The project seeks to integrate multiple modes of transportation at South Station and set the foundations for development of its surroundings. The existing South Station headhouse will continue to function as the portal of the improved full-intermodal facility. Proposed improvements include the addition of rail tracks into the station and expansion of the concourse area above the tracks. Space planning may include reconfiguration of the public spaces, concessions, and services to achieve better flow and integration of the existing station and its expansion. Proposed improvements will occur primarily at the rear of the South Station headhouse. Direct impacts to the headhouse are anticipated to be minimal.

The USPS General Mail Facility/South Postal Annex is proposed to be acquired and demolished. The structure is included in the Inventory of Historic and Archaeological Assets of the Commonwealth. Construction of the USPS General Mail Facility, located adjacent to the South Station tracks to the southeast, was completed in July/August 1936. The South Postal Annex, consisting of a substantial renovation and addition, was approved by the City of Boston in July 1967 and constructed between 1967 and 1971. Renovations to the South Postal Annex were made circa 1980. The General Mail Facility/South Postal Annex was surveyed by the BLC in 1980, at which time it was noted that the structure did not contribute architecturally to the surrounding area. The building was evaluated by the USPS in 1983, which concluded that extensive renovations had substantially altered the original structure and that the property did not meet National Register eligibility criteria.

As the SSX project advances, MassDOT will consult with MHC in accordance with M.G.L. Chapter 9, Sections 26-27C (950 CMR 71.00) and Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800) to assess potential impacts to significant historic resources. If impacts associated with the project are unavoidable, MassDOT will work with MHC and interested parties, such as the Boston Landmarks Commission, to develop appropriate measures to minimize or mitigate impacts to historic resources. MassDOT and the FRA will consult with MHC to determine an “Area of Potential Effect” (APE) for the SSX project, consisting of an APE for historic resources and an APE for archaeological resources.

### III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

The SSX project is subject to State Register Review (950 CMR 71.00), as state funding and permits are required. The SSX project also is subject to Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800). The submission of this ENF initiates consultation with MHC under State Register Review regulations, which allow this process to be undertaken concurrently with the MEPA review process. Consultation with MHC will be undertaken to address the SSX project's potential effects to significant historic resources.

## CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

   (Name) The Boston Globe (Date) March 20, 2013

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

03/14/13
Date Signature of Responsible Officer or Proponent

David J. Mohler, Executive Director
Name

03.14.2013
Date Signature of Responsible Officer or Proponent

Katherine Fichter, Manager of Long-Range Planning
Name

Massachusetts Department of Transportation, Office of Transportation Planning
Firm/Agency

Ten Park Plaza, Room 4150
Street

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Municipality/State/Zip

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SOUTH STATION
EXPANSION

# Attachment A

# Detailed Project Description

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## Preface

The expansion of South Station has been an identified transportation need for decades. An expanded South Station would enhance the multimodal transportation network of Massachusetts, support the Northeast Corridor (NEC), and enable increased Massachusetts Bay Transportation Authority (MBTA) commuter rail service. The value of an expanded South Station has been extensively documented in state and regional transportation plans including, most recently, the Massachusetts Department of Transportation's (MassDOT's) *Massachusetts State Rail Plan* (2010) and *Massachusetts Freight Plan* (2010); the Boston Region Metropolitan Planning Organization's (MPO's) *Paths to a Sustainable Region*, the long-range transportation plan for the metropolitan Boston region (2011); and the MBTA's *Program for Mass Transportation* (2009).

While the vision for an expanded South Station has been well developed, existing constraints with respect to rail support facilities, specifically vehicle layover space, have not been as well documented. Additional vehicle layover space is an element of the South Station Expansion (SSX) project, as increased capacity at the station will require increased capacity for rail vehicle storage. This Environmental Notification Form (ENF) therefore includes, as an attachment, an alternatives analysis documenting existing and future needs associated with rail layover space, as well as the preliminary screening process used to evaluate layover alternatives to support both the existing and an expanded South Station.

## 1. Project Context

South Station is the terminus of the National Railroad Passenger Corporation's (Amtrak's) NEC service and Amtrak's Lake Shore Limited service from Chicago via Albany. Located in Boston's Financial District, South Station is the sixth busiest station in the national Amtrak system and Boston's busiest multimodal transportation hub. South Station also serves as the terminus for the western and southern lines of the MBTA's commuter rail system, the fifth largest commuter rail system in the nation. South Station provides connections to the MBTA Red Line and to Logan International Airport via the MBTA Silver Line. South Station's bus terminal is a hub for intercity, regional, and local bus service in eastern Massachusetts. Constructed more than 110 years ago and listed in the State and National Registers of Historic Places, South Station is one of the most significant and iconic architectural structures in the City of Boston. Figure 1 in Attachment B shows the SSX project location on USGS maps.

The NEC service is the nation's first and only existing high-speed rail (HSR) service. The NEC rail corridor forms the eastern backbone of the United States passenger rail network, roughly paralleling Interstate 95. It connects Washington, D.C. to Boston, Massachusetts (the main line), and serves major population centers along the East Coast, including Baltimore, New York, Philadelphia, New Haven, and Providence. The NEC branch lines extend to Springfield, Massachusetts; Albany, New York; Harrisburg, Pennsylvania; and Richmond, Virginia. The NEC is the busiest railroad in North America, with more than 2,200 trains operating over some portion of the Washington-New York City-Boston route each day. Amtrak carries 13 million annual passengers on the NEC via its Acela Express and Northeast Regional services. Amtrak's ridership share on the NEC continues to grow and now dominates the air/rail market, with 75 percent of the New York-Washington market and 55 percent of the New York-Boston market. Approximately 1.36 million Amtrak passengers traveled through South Station in 2011. From 2003 to 2011, the number of Amtrak passenger arrivals and departures through the station increased by almost 43 percent. In 2012, there were approximately 80,600 weekday inbound and outbound MBTA south side commuter rail boardings (including South Station and Back Bay station). South Station is also a portal for over 16,000 daily bus terminal passengers, and nearly 28,000 additional weekday subway and bus

transit passengers.

The primary purpose of the SSX project is to improve NEC passenger rail service delivery into and out of Boston so as to accommodate existing services and enable projected growth in HSR and other intercity passenger rail service throughout the Northeast. The SSX project is part of an overall plan to improve intercity and future high-speed passenger rail service in the NEC, as stated in Amtrak's *NEC Master Plan,* its *Vision for High Speed Rail in the Northeast Corridor,* and its 2012 update. Amtrak projects that by 2040, overall NEC ridership will increase by nearly threefold. HSR ridership on the Acela Express will be more than nine times higher by 2040 than the current 3.2 million riders, growing to 29.7 million HSR riders. Furthermore, projections indicate that ridership on MBTA commuter rail lines will grow by at least 28 percent by 2030. Implementation of the SSX project will facilitate a more efficient and attractive passenger rail network for the northeastern United States.

Amtrak's 2030 plans call for increased service between Boston and New York City, from the current 38 daily trains (19 roundtrips) to 48 trains (24 roundtrips), providing hourly Acela Express and near hourly regional services throughout the day. Five additional trains are projected to operate out of Boston over the "inland route" through Worcester to Springfield and New Haven. By 2030, the *NEC Master Plan* assumes a three hour: eight minute (3:08) Acela Express trip time between Boston and New York City, a decrease of approximately 12 percent from 2010 trip times. Both Amtrak's and the MBTA's proposed service expansions include the use of additional train consists (locomotive and coaches).

South Station currently has less than half the original track capacity that was available when the station first opened in 1899, but it continues to operate as the most heavily used passenger rail facility in New England. All thirteen tracks are fully utilized by Amtrak and the MBTA. As a result, South Station is experiencing increasing congestion and declining service reliability. Further, there is not sufficient vehicle layover space to meet existing and future South Station operational requirements. Layover facilities are used to store, service, inspect and maintain trains when they are not in service. Without additional layover space, existing operations and future Amtrak and MBTA service expansions and other planned improvements will be seriously constrained.

State, regional, and local development plans highlight the importance of the SSX project in enhancing the multimodal transportation network in Massachusetts, supporting a more attractive and increased MBTA commuter rail service, and supporting economic development in Boston. The MBTA's *Program for Mass Transportation* calls for additional tracks at South Station to address peak-period track capacity demands due to recent and ongoing expansion of its south side commuter rail system. The *Massachusetts State Rail Plan* identifies the NEC as a top priority for passenger rail in the state and the SSX project as a priority rail project to improve service to southern communities along the MBTA commuter rail lines. The SSX project is consistent with the most recent regional economic development plan, *MetroFuture: Making a Greater Boston Region,* and *Paths to a Sustainable Region*, the long-range transportation plan for the metropolitan Boston region. The SSX project also is consistent with the planning policies and goals of neighborhood development plans, including *The Fort Point District 100 Acres Master Plan* and the *Fort Point Channel Watersheet Activation Plan.*

## 2. Project Site

The South Station site occupies approximately 49 acres located near Chinatown, the Fort Point Channel, and the Seaport-Innovation District/South Boston Waterfront. The site includes the following: South Station Rail/Transit Terminal and South Station Bus Terminal, approximately 16 acres; and the U.S. Postal Service (USPS) General Mail Facility/South Postal Annex site of approximately 16 acres,

including that portion of Dorchester Avenue fronting the site. Of the remaining 17 acres, approximately 14 acres consist primarily of track, and three acres consist of a small park, Harborwalk area, and a portion of the Fort Point Channel located at the southern end of the site. The South Station site extends to include the historic headhouse to the north, located at the intersection of Atlantic Avenue and Summer Street. The site extends along a portion of the NEC Main Line to the west, extending past Cove Interlocking. The site extends along a portion of the MBTA's Fairmount Line/Old Colony Railroad to the south, extending just past Broadway Interlocking.

The SSX project includes the construction of layover facilities at one or more sites. The three sites currently under consideration for new and/or expanded layover facilities are the Boston Transportation Department (BTD)-owned Tow Lot, Beacon Park Yard, and Readville - Yard 2. The BTD Tow Lot site is located along Frontage Road in Boston, approximately 1 track-mile from South Station. The Beacon Park Yard site is located along Cambridge Street in the Allston section of Boston, approximately 4 track-miles from South Station. The Readville - Yard 2 site is located off Wolcott Court in the Hyde Park section of Boston, approximately 9 track-miles from South Station.

Figure 2 in Attachment B presents the SSX project site boundaries and major transportation facilities in the vicinity of the SSX project elements. Figures 3, 4, 5, and 6 present existing site resources, environmental constraints, and the historic shoreline.

The SSX project meets Massachusetts Environmental Policy Act (MEPA) thresholds for the preparation of an Environmental Impact Report (EIR). MassDOT will address the project's direct and indirect impacts, including construction period impacts, as well as the project's infrastructure requirements.

# 3. Project Alternatives

MassDOT has not currently identified a preferred alternative for the SSX project. MassDOT will include an alternatives analysis in the Draft EIR, in which alternatives for the primary elements of the SSX project will be evaluated, including: expansion of the South Station terminal facilities onto the adjacent USPS facility site, provision for joint/private development opportunities adjacent to and over an expanded South Station, and construction of layover facilities. The SSX project alternatives are categorized as South Station Terminal - Joint/Private Development Alternatives and Layover Facility Site Alternatives.

Although demolition of the USPS facility after it is vacated is part of the SSX project, the relocation of the USPS facility is not part of the SSX project and will not be included in the alternatives analysis. The USPS will determine the future location(s) to which its operations will be relocated, and the facility relocation will be subject to its own environmental review as required by state and federal regulations.

## 3.1. South Station Terminal – Joint/Private Development Alternatives

There are four South Station Terminal - Joint/Private Development alternatives:

- No Build Alternative
- Alternative 1 – Transportation Improvements Only
- Alternative 2 – Joint/Private Development Minimum Build
- Alternative 3 – Joint/Private Development Maximum Build

Figure 7 in Attachment B presents schematic drawings of the South Station Terminal - Joint/Private Development alternatives. The Build alternatives primarily are distinguished by the degree to which

private development would or would not be accommodated. Alternative 1 would not provide for potential private development at South Station. Alternatives 2 and 3 represent the lower and upper bounds of potential private development at South Station. To the extent that the environmental impacts of the future private development are not addressed in the evaluation of the SSX project, additional MEPA filings may be necessary. Additionally, future private development will require filings with the City of Boston pursuant to Article 80 of the Boston Zoning Code.

All Build alternatives would include construction of additional layover facilities at one or more sites to service South Station operations.

### 3.1.1. No Build Alternative

The No Build Alternative represents a future baseline condition against which the Build alternatives will be compared. With the No Build Alternative, the South Station complex, including the headhouse, track operations, and the USPS General Mail Facility, would remain as they currently exist. Dorchester Avenue would remain predominantly in private use by the USPS, with public access provided over a short length along Fort Point Channel.

With the No Build Alternative, there would be no private development at the South Station complex beyond the development previously approved by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA): the South Station Air Rights project. The South Station Air Rights project was approved by the Secretary of EEA in 2006 (EEA Number 3205/9131) as an approximate 1.765 million square foot mixed-use development to be located directly above the railroad tracks at the South Station headhouse. The South Station Air Rights project also includes a horizontally expanded bus terminal of approximately 70,000 square feet, pedestrian connections from the train station concourse and platforms to the expanded bus terminal, and a 3-level parking garage with 775 spaces located above the bus terminal.

### 3.1.2. Alternative 1 – Transportation Improvements Only

Alternative 1 would include the previously-approved private development described in the No Build Alternative. In addition, South Station would be expanded onto the adjacent 16-acre USPS property. MassDOT would acquire and demolish the USPS General Mail Facility/South Postal Annex. The existing South Station terminal, consisting of a 69,000-square foot transit concourse and 126,000 square feet of office space, would be expanded by approximately 215,000 square feet, for a total terminal size of approximately 410,000 square feet, consisting of an expanded passenger concourse and passenger support services. Capacity improvements would include construction of up to seven new tracks and platforms and extension of some existing platforms, for a total of up to 20 tracks. Cove, Broadway and Tower 1 Interlockings at the terminal approach would be reconstructed. With Alternative 1 – Transportation Improvements Only, South Station expansion and development would be in accordance with Chapter 91 standards for non-water-dependent infrastructure facilities and city zoning requirements. With Alternative 1, no provision would be made for future private development as part of the SSX project.

Dorchester Avenue, which runs parallel to the Fort Point Channel, would be restored for public and station access. The USPS owns in fee that portion of Dorchester Avenue which extends from the southern line of Summer Street to a line on the southern shore of Fort Point Channel adjacent to the Gillette property. The majority of Dorchester Avenue at the site is used exclusively by the USPS in support of USPS operations. Extending from the southern line of Summer Street, the MBTA maintains a permanent easement for pedestrians and vehicles over approximately 200 feet, and generally unrestricted

public access is provided over approximately 400 feet for customer use of USPS facilities. Restoration of Dorchester Avenue would reconnect Dorchester Avenue to Summer Street as a public way. It would include landscaping and improved pedestrian and cycling connections and facilities (adjacent sidewalks, crosswalks, and bike lanes). Restoration also would include construction of a long-awaited extension of the Harborwalk along reopened Dorchester Avenue. Figure 8 in Attachment B presents potential cross-sections for the restoration of Dorchester Avenue and extension of the Harborwalk. Figure 9 presents existing Dorchester Avenue and Harborwalk photographs in the vicinity of South Station.

Alternative 1 also would include construction of additional layover facilities at one or more sites.

### 3.1.3. Alternative 2 – Joint/Private Development Minimum Build

Alternative 2 would include Alternative 1, as well as provisions for future private development by incorporating appropriate structural foundations into the overall station and track design.

With Alternative 2, the potential for future private development at the South Station complex would comply with existing state and local regulations.[1] Future private development would occur in conformance with the existing Chapter 91 regulations as well as with the Fort Point Downtown Municipal Harbor Planning Area requirements and the Massachusetts Coastal Zone Management Program.

Preliminary assessments indicate that future private development with this alternative could include approximately 850,000 square feet of mixed-use development consisting of office, retail, residential, and hotel uses, with building heights ranging up to approximately 12 stories. Development could include approximately 470 parking spaces, not including public/private shared parking opportunities.

Alternative 2 also would include construction of additional layover facilities at one or more sites.

### 3.1.4. Alternative 3 – Joint/Private Development Maximum Build

Alternative 3 would include Alternative 1. It would also provide for future private development by incorporating appropriate structural foundations into the overall station and track design.

With Alternative 3, the maximum potential for future private development at the South Station complex would be limited by the Federal Aviation Administration's (FAA's) maximum building height limits, pursuant to the Terminal Instrument Procedures (TERPS) regulations applicable to Boston Logan International Airport. Accordingly, building heights would be limited to approximately 290 feet. Alternative 3 would require an amendment to the Municipal Harbor Plan, modifying applicable Chapter 91 regulations. No development would likely occur over the secondary headhouse and portions of track interlocking.

Preliminary assessments indicate that future private development could include approximately 2.5 million square feet of mixed-use development consisting of office, retail, residential and hotel uses, with building heights up to approximately 26 stories. Development could include approximately 1,370 parking spaces,

[1] Applicable State regulations include Massachusetts General Law (MGL) Chapter 91, Sections 1 through 63, and its implementing regulations, 310 Code of Massachusetts Regulations (CMR) 9.00. Applicable local regulations include the Boston Zoning Code, pursuant to Article 27, *Interim Planning Overlay District*, as extended through February 16, 2001; Article 40, *South Station Economic Development Area*, as amended through June 29, 2006; and Article 80, *Development Review and Approval*, as amended through January 10, 2007.

not including public/private shared parking opportunities.

Alternative 3 also would include construction of additional layover facilities at one or more sites.

## 3.2. Layover Facility Site Alternatives

### 3.2.1. Layover Facility Needs

Layover yards are critical to rail operations because they provide a location to stage train consists (locomotive and coaches) during off-peak periods, thereby keeping unused trains off active tracks in order to minimize congestion at stations. Amtrak and the MBTA currently use four layover yards to support South Station operations: Amtrak's Southampton Street Yard, Amtrak's Front Yard, the MBTA's South Side Service and Inspection Facility, and the MBTA's Readville - Yard 2. Figure 2 in Attachment B provides the location of the existing Amtrak and MBTA layover yards.

Southampton Street Yard supports all existing Amtrak operations in metropolitan Boston. The layover capacity for the MBTA's south side commuter rail service area is inadequate under existing conditions; there is a shortfall of three consists. This shortfall results in tight scheduling of revenue and non-revenue trains inbound to and outbound from the South Station terminal. In addition to trains that use one of the four layover areas, due to the combination of track and layover capacity constraints and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover facilities. The use of the platform tracks as a layover site increases congestion at the terminal and creates operational conflicts, especially during morning and evening peak periods. This situation is exacerbated in inclement weather, when trains run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur.

As previously indicated, both Amtrak and the MBTA anticipate substantial future growth in passenger rail service. In its long-term vision for the NEC, Amtrak projects a nearly threefold increase in NEC ridership associated with HSR and intercity service. In *The Amtrak Vision for the Northeast Corridor – 2012 Update Report,* Amtrak projects the use of additional consists associated with its Next-Generation High-Speed Rail Program (NextGen HSR) projects to be completed from 2020 to 2040. Amtrak also has stated plans to potentially expand Southampton Street Yard to accommodate its future overnight layover needs. Additional equipment and layover capacity will be needed to support other new regional rail services using South Station as a terminal facility, including revival of the Massachusetts Inland Route connecting Boston, Framingham, Worcester, and Springfield. By 2025, due to planned Amtrak and MBTA service expansions and increased MBTA ridership demand, it is estimated that the MBTA shortfall in layover capacity will be six train consists. By 2040, due to planned ridership growth and reduction of layover capacity at some facilities due to increased MBTA consist lengths, it is estimated that the MBTA shortfall in layover capacity will be 19 train consists. Specific details of Amtrak's 2040 layover needs and service and inspection requirements (including track length and support facilities) are not yet known, but it is assumed that Amtrak will need layover space beyond what is currently available.

With anticipated increased service demands for both Amtrak and the MBTA, the lack of layover capacity will become a major constraint and limit the planned growth in rail service at South Station. To meet these needs, it is critical that layover yards provide sufficient capacity to accommodate future service increases and fleet expansions. This will allow for optimal efficiency and flexibility at South Station for revenue operations. The expansion of South Station, along with additional layover capacity, will reduce operating capacity constraints that currently impact on-time performance for service into the station. The

MBTA's midday layover needs could complement Amtrak's overnight layover needs, allowing joint usage of future layover facilities.

While both Amtrak and the MBTA are constrained in their ability to store their current fleet of vehicles, MassDOT is also keenly aware of the growing opportunity to provide rail service using different types of vehicle technologies. As part of analyzing layover needs related to the SSX project, MassDOT will consider the layover and servicing needs of vehicle types beyond those in the current MBTA fleet.

### 3.2.2. Summary of Layover Facility Alternatives Analysis

The identification and evaluation of layover alternatives involved a multi-step process, the first of which was to quantify the layover space needed for both Amtrak and the MBTA today and in the future, projected to the year 2040. Shortfalls in capacity were determined by comparing future needs to the capacity of the existing layover facilities used by South Station trains. In consultation with project stakeholders, the MBTA, Amtrak, and City of Boston representatives, appropriate criteria to identify and evaluate candidate locations were then developed. Working with project stakeholders, and utilizing the evaluation criteria, candidate sites were identified for consideration and review, and assessed for their ability to support South Station needs and operations. Based on this effort, 28 sites were identified that could potentially meet the project's goal and objectives, such as accessibility to an existing MBTA line, compatible land use, appropriate size, and proximity to South Station.

The 28 sites were then assessed using a two-tiered screening process. The first tier screening evaluated the ability of each site to meet the overarching transportation and program objectives for the project using criteria such as ease of land acquisition, effect on operations, and ability to integrate the site into the existing rail and roadway networks. Of the 28 candidate sites, ten locations met these criteria and were advanced to the second tier evaluation. The second tier screening process involved developing conceptual designs, developing preliminary operating plans, and identifying infrastructure requirements for each of the remaining candidate sites. Of the ten candidate sites from the Tier 1 screening, three locations were identified as having the ability to best meet the needs of the SSX project and will be analyzed further in the Draft EIR.

Initial conceptual designs determined that no single remaining alternative has the physical space needed to singularly fulfill the entire layover need in the year 2040. Additionally, this analysis determined that from an operational perspective, due to the track configuration at South Station, it may be advantageous for the layover needs to be met by more than one site location. Thus, the next phase of the layover assessment, to be included in the Draft EIR, will include evaluating combinations of the three sites to test their ability to integrate with the existing four layover facilities serving South Station. This phase will involve refining the concept plan for each site and developing rail operations plans to determine the alternative that will best meet the needs of the SSX project.

### 3.2.3. Layover Facility Sites Advanced for Further Evaluation

The following three sites passed the initial project screenings:

- **BTD Tow Lot Site.** The BTD Tow Lot site, which currently includes facilities for the Boston Department of Public Works (DPW), is located on the MBTA's Fairmount Line. The approximate 11-acre site is located approximately 1 track-mile from South Station.

- **Beacon Park Yard Site.** The Beacon Park Yard site is located between the I-90 Massachusetts Turnpike Allston Toll Plaza and the MBTA's Framingham/Worcester Line. The approximate 22-acre site is located approximately 4 track-miles from South Station.

- **Readville - Yard 2 Site.** The Readville - Yard 2 site, located on the MBTA's Fairmount Line, is an existing rail facility owned by the MBTA. The approximate 17-acre site is located approximately 9 track-miles from South Station.

The three layover sites were determined to best meet the SSX project's goal and objectives when measured against operational needs, property requirements, potential environmental impacts, consistency with local planning, and capital improvements. Attachment C contains the Layover Facility Alternatives Analysis Report which documents the assessment of existing and future layover capacity needs for South Station, and identifies and evaluates potential layover sites to accommodate future growth.

# 4. Project Impact Assessment and Environmental Review

## 4.1. Alternatives Analysis

MassDOT will evaluate build alternatives for the primary elements of the SSX project, including: expansion of the South Station terminal facilities onto the adjacent USPS facility site, provision for joint/private development opportunities adjacent to and over an expanded South Station, and alternative sites for the construction of new or expanded layover facilities. The No Build Alternative represents the baseline condition against which the Build alternatives will be compared.

### 4.1.1. South Station Terminal – Joint/Private Development Alternatives

MassDOT will address direct and indirect impacts, including construction period impacts, as well as infrastructure requirements associated with each of the build alternatives. More detailed features and dimensions of the South Station site will be developed for evaluation of the alternatives in the Draft EIR. MassDOT will propose mitigation measures to offset potential environmental impacts of the preferred alternative.

### 4.1.2. Layover Facility Site Alternatives

All of the South Station Terminal-Joint/Private Development Build alternatives would include construction of additional layover facilities at one or more sites to support South Station operations. MassDOT will further evaluate the three layover facility site alternatives which passed the initial project screenings: the BTD Tow Lot, Beacon Park Yard, and Readville - Yard 2. Different combinations of the three alternatives that could meet the existing and future layover facility needs for the South Station expansion will be examined. This phase of review and analysis will include development of refined conceptual plans; a phasing plan that addresses sequencing and timing of the three sites based on operational need; conceptual operating plans; capital, operations and maintenance cost estimates; and further evaluation of potential environmental impacts. Results of the analysis will be coordinated with the City of Boston, project stakeholders, and the public to identify a preferred alternative to advance to preliminary engineering and project development.

## 4.2. Noise and Vibration Analysis

MassDOT will conduct a construction noise and vibration analysis. The analysis will be performed in accordance with the Federal Transit Administration (FTA) guidance manual. A noise and vibration monitoring program will be conducted to establish the existing ambient background noise levels within the South Station project area and to determine the existing vibration levels from the train operations at South Station and the layover facility sites. These data will be used to develop the project criteria noise limits using the FTA guidelines.

To estimate impacts during operations, noise modeling and vibration modeling will be performed using FTA noise and vibration prediction models. Noise and vibration levels under the future (design year) build alternatives will be compared with the FTA noise criteria. If the project noise and vibration levels exceed the FTA and other applicable criteria, the feasibility of abatement measures listed in the FTA guidelines will be evaluated for mitigating impacts at noise- and vibration-sensitive receptors.

If construction noise impacts are predicted to occur, noise mitigation measures will be recommended, and evaluated, as appropriate. The potential for damage from vibratory or impact devices will be assessed as part of the construction assessment. While vibration criteria are generally used to assess annoyance from transit sources at the exterior facade of receptors, ground-borne noise or the rumbling sound due to vibrating room surfaces is typically assessed indoors. Ground-borne noise indoors will be assessed.

## 4.3. Wind and Shadow Impact Assessment

MassDOT will evaluate potential impacts to the public realm from wind and shadow associated with the two joint/private development alternatives (Alternative 2 [zoning compliant] and Alternative 3). Alternatives 2 and 3 will consider a range of building envelopes adjacent to and over the expanded South Station potentially reaching up to 290 feet. To assess any potential ground level impacts to the pedestrian environment from this additional height, MassDOT will provide a quantitative wind analysis, including wind tunnel testing. The quantitative analysis also will consider potential wind impacts to new and existing open spaces, a Harborwalk extension along the Fort Point Channel, and other potential public realm impacts.

In its shadow study, MassDOT will compare shadow impacts from the two future joint/private development alternatives (Alternatives 2 and 3) with existing shadow conditions. The analysis will compare the shadow conditions of all three scenarios, hourly from 9:00 am to 5:00 pm for the "shoulder seasons" represented by October 23rd.

## 4.4. Public Benefit Review

MassDOT will provide a request for a Public Benefit Review and Determination. The request for a Public Benefit Review and Determination will include a discussion of the following: purpose and effect of the SSX project; impact of the SSX project on abutters and the surrounding community; enhancement to the property; benefits to the public trust rights in tidelands; community activities on the South Station site; environmental protection and preservation; and public health, safety, and general welfare.

## 4.5. Coastal Consistency Assessment

The SSX project will require Federal Consistency Certification because of the federal funding through the Federal Railroad Administration (FRA). Chapter 91 requires consistency with the Massachusetts Office of Coastal Zone Management's (MassCZM's) policies and principles for projects requiring a new or

amended Chapter 91 Waterways License (310 CMR 9.54). An assessment of the SSX project's consistency with MassCZM policies will be included in the Draft EIR.

## 4.6. Transportation Analysis

MassDOT will conduct a transportation analysis, consisting of a detailed traffic and parking analysis of the project alternatives. The transportation analysis will examine existing travel patterns and future 2040 No Build and Build alternative transportation conditions. Travel demand forecasting performed by the Central Transportation Planning Staff will be developed for 2040 and used to assess transportation and traffic impacts, using a traffic model (SYNCHRO network) to analyze weekday a.m. and p.m. peak hours and Saturday midday traffic. The transportation analysis will include collection of existing data on transportation modes, including vehicular (including taxicabs), public/private transit (rail and bus), pedestrians, bicyclists, as well as crash data. The transportation analysis will incorporate Amtrak-generated forecasts of intercity passenger rail ridership. Transit ridership and service data will be collected, and information on private development will be collected from the BRA for use in developing forecasts. The traffic analysis will include a parking generation assessment for the proposed joint/private development alternatives (both Alternative 2 -Minimum Build and Alternative 3 - Maximum Build).

MassDOT will discuss the need for state permits at the South Station site and the alternative layover facility sites. MassDOT also will address the role of the SSX project with respect to area-wide Transportation Management Associations and the provision of Transportation Demand Management services in the South Station area.

## 4.7. Greenhouse Gas Emissions Analysis

MassDOT will assess the SSX project's role in complying with the Revised MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol (May 5, 2010). MassDOT will coordinate with the Massachusetts Department of Energy Resources on a proposed approach to addressing GHG emissions. MassDOT will describe and evaluate measures to avoid, minimize or mitigate GHG emissions, including direct emissions from diesel trains and on-road sources, and indirect emissions due to electricity use and other energy related uses. MassDOT also will assess the role of the SSX project relative to advancing the Massachusetts Clean Energy and Climate Plan for 2020, which targets the transportation sector with a 7.6 percent decrease in the 1990 GHG emissions by 2020.

## 4.8. Air Quality Analysis

MassDOT will perform an air quality analysis. A regional emissions inventory will be prepared for criteria pollutants (volatile organic compounds [VOCs], oxides of nitrogen [$NO_x$], carbon monoxide [CO], sulfur oxides [$SO_x$] and particulate matter [$PM_{10}$/$PM_{2.5}$]). The emissions inventories will include daily and annual emissions from the diesel locomotives and motor vehicles on roadways in the air quality study area for the existing and design year for the No Build and Build alternatives.

A localized microscale assessment will include a CO hotspot or intersection analysis (using the U.S. Environmental Protection Agency's [U.S. EPA's] CAL3QHC model) for South Station and the layover facility sites. The worst-case one-hour CO concentrations and eight-hour concentrations will be estimated.

It is assumed that the South Station project is of "local air quality concern," and a particulate matter (PM) quantitative hotspot analysis is needed. If data are available, MassDOT will conduct a quantitative PM

hotspot analysis following U.S. EPA's December 2010 guidelines. For the quantification, the analysis will focus only on the emissions from the diesel trains and the motor vehicles in the air quality study area. If data are unavailable or if consensus with the Massachusetts Department of Environmental Protection (MassDEP) cannot be reached on the analysis area or the methodology, MassDOT will conduct a qualitative analysis following joint Federal Highway Administration's (FHWA's) and U.S. EPA's previous guidance dated March 2006. Additionally, MassDOT will conduct a screening analysis of $NO_2$ using dispersion modeling.

## 4.9. Solid and Hazardous Waste Assessment

MassDOT has initiated a Phase I Environmental Site Assessment (ESA) to identify any recognized environmental conditions associated with the SSX project, including South Station, the existing USPS facility site, and the alternative layover facility sites. The Phase I ESA considers above-ground contamination sources (associated with the buildings, particularly the USPS facility to be demolished) and below-ground contamination sources (associated with on-site soils and subsurface conditions). It includes a review of existing data and an on-site inspection and sampling. If any recognized environmental conditions are identified, recommendations for further evaluations and testing may be warranted as part of a Phase II ESA. Additionally, MassDOT will address the need for state permits related to solid and hazardous waste at the South Station site and/or the alternative layover facility sites.

## 4.10. Historical and Archaeological Review

MassDOT will consult with the Massachusetts Historical Commission (MHC) and other interested parties, such as the Boston Landmarks Commission, to assess potential impacts to significant historic resources in accordance with Massachusetts General Law (MGL) Chapter 9, Sections 26-27C (950 CMR 71.00) and Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800). MassDOT and FRA will consult with MHC to develop Areas of Potential Effect (APEs) for the South Station site and the three alternative layover facility sites, consisting of an APE for historic resources and an APE for archaeological resources. The APE will be based on the area for potential construction-period effects, such as direct physical impacts and indirect impacts including ground-borne vibrations. The APE also will consider potential visual or contextual effects.

MassDOT will conduct a reconnaissance level architectural resources survey of the entire project site and architectural APE. Within the APE, architectural resources that have not been previously evaluated for State and National Register (S/NR) eligibility, but which appear to meet the S/NR criteria of eligibility or are over 50 years of age will be identified. For those resources, Massachusetts Historic Structure Inventory Forms and S/NR eligibility recommendations will be prepared. Determinations of eligibility from the State Historic Preservation Officer (SHPO) will be sought as part of this analysis. The Phase I Archaeological Reconnaissance Survey will include a review of existing conditions and historical data, to provide a formal archaeological sensitivity assessment of the project APE. Data collected will include the locations and State/National Register eligibility status of known archaeological sites within a one mile radius of the project APE on file at the MHC. Based on the Phase I survey, the need for Phase IB (and, if necessary, Phase II) intensive archaeological survey will be determined.

Pending the completion of Phase IB and II identification and evaluation studies, as needed, if it is determined that the SSX project may result in adverse effects to significant historic architectural resources and significant archaeological resources, then a Memorandum of Agreement (MOA) will be prepared outlining measures to eliminate, minimize or mitigate adverse project impacts.

### 4.11. Environmental Justice Review

The Environmental Justice review of the SSX project will be conducted based on federal and state guidance. MassDOT will identify locations of Environmental Justice populations, and will assess the impacts upon those populations. Potential impacts will be evaluated for the No Build and Build alternatives. The effects of the alternatives on Environmental Justice populations will be evaluated relative to their overall effects, to determine whether the impacts on Environmental Justice populations would be disproportionate and adverse.

## 5. Project Mitigation Measures

MassDOT will propose mitigation measures to offset potential environmental impacts of the preferred alternative. At this preliminary stage of analysis, MassDOT has identified the following measures to address potential construction and operations impacts. As alternatives are evaluated in the Draft EIR and design is advanced, MassDOT will continue to identify mitigation measures to address impacts.

### 5.1. Maximize Sustainable Development

The SSX project is consistent with the Commonwealth of Massachusetts' Sustainable Development Principles, as promulgated by the Executive Office of Housing and Economic Development (EOHED), and MassDOT's GreenDOT Implementation Plan with respect to sustainable infrastructure and site design and development, and building design, construction, and operation. The SSX project supports EOHED's Sustainable Development Principles, particularly the following: concentrate development and mix use; provide transportation choice; increase job and business opportunities; and plan regionally. The SSX project also supports MassDOT's GreenDOT Implementation Plan which builds upon the EOHED Sustainable Development Principles, as well as the MassDOT stewardship goal: "*Operate the transportation system in a manner that embraces our stewardship of the Commonwealth's natural, cultural, and historic resources*." In general, the Plan has three primary objectives: reduce greenhouse gas emissions; promote healthy transportation options of walking, bicycling, and public transit; and support smart growth development.

The GreenDOT Implementation Plan sets broad, achievable goals to decrease resource use, minimize ecological impacts, and improve public health related to MassDOT planning, developing, and operating processes. MassDOT will use this Plan as a guide to ensure that these objectives are a constant priority throughout the life of the SSX project. As identified in the ENF, design and construction of the SSX project will advance many of GreenDOT's goals to decrease resource use, minimize ecological impacts, and improve public health outcomes.

The GreenDOT Implementation Plan exemplifies the goals set forth in other sustainable infrastructure guidance, including The Institute for Sustainable Infrastructure's *Envision Sustainable Infrastructure Rating System* and *The Greenroad's Rating System*. These manuals consist of sustainability best practices in infrastructure planning, design, and construction, and allow users to rate projects based on a scorecard system similar to the United States Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) rating system. There is considerable overlap between the LEED rating system and the sustainable infrastructure rating systems, which allows MassDOT to develop a sustainability approach that will foster consistent sustainable development between transportation infrastructure and future building infrastructure.

The City of Boston Environment Department has issued guidelines for high performance buildings and sustainable development. MassDOT will use these guidelines as a resource for minimizing the environmental impacts of the SSX project.

## 5.2. Identify Best Management Practices for Stormwater Management

SSX project activities at the South Station site will be located within the 100-foot buffer zone of the coastal bank (Fort Point Channel seawall). MassDOT will address the extent and duration (permanent vs. temporary) of impacts to the buffer zone, including the results of a site survey conducted to determine the extent of the base flood elevation in the vicinity of South Station and potential impacts by the project.

MassDOT will comply with MassDEP's Stormwater Management Regulations. MassDOT will discuss the applicability of the performance standards of the Massachusetts Stormwater Handbook (February 2008), including the standard for redevelopment of previously-developed sites. MassDOT will identify mitigation strategies such as Best Management Practices (BMPs) for short-term construction and long-term project impacts. The analysis will take into consideration the stormwater BMPs designed for each project element. The analysis will evaluate and compare storm-event peak flow rates to existing conditions. The proposed increase in impervious cover will be calculated, and potential pollutant sources will be identified to the extent possible. If impacts to protected wetlands or floodplains resources are anticipated, mitigation strategies such as avoidance, minimization, and potential compensation will be identified, along with potential BMPs.

As indicated in Attachment F, the project will obtain a National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from Construction Sites. MassDOT will use the City of Boston Department of Environment's Guidelines for Construction as a resource for minimizing environmental impacts of the SSX project.

In addition to identifying project BMPs, MassDOT will consider climate change adaptation strategies and other potential analyses from applicable sources, such as those recommended in The Boston Harbor Association's recent publication, *Preparing for the Rising Tide.* MassDOT will evaluate the potential to incorporate strategies addressing water supply, drainage, and wastewater management in the design and construction of the SSX project. Example strategies include assessing how future flooding potential will affect South Station, especially in view of Federal Emergency Management Agency's (FEMA's) update of the Suffolk County flood insurance study; identifying critical building elevations that indicate levels at which floods could cause damage; and evaluating ways to make South Station more flood-resistant or flood-resilient.

## 5.3. Incorporate Recycling within Demolition Plans

The SSX project will generate solid waste during demolition of the USPS facility. It is anticipated that the development of the layover facilities also will generate solid waste due to demolition of existing facilities. MassDOT will develop demolition plans for the USPS facility and other facilities as needed. The demolition plans will be incorporated within the project construction management plans. Construction management will be conducted following City of Boston Environment Department guidelines to the extent possible.

The demolition plans will include alternatives for recycling materials. Demolition debris will be segregated and recycled to the extent possible. Asphalt, brick and concrete will be processed and used for

fill. Metal will be separated and recycled for scrap. MassDOT will discuss recycling goals for solid waste generated during the SSX project in the Draft EIR.

## 5.4. Address Chapter 91 Policies for Water-Dependent and Non-Water-Dependent Uses

A Chapter 91 License will be required for the South Station site for work within filled tidelands. As alternatives are evaluated in the Draft EIR and design is advanced, MassDOT will present relevant acreage of the project site allocated for non-water-dependent use (transportation improvements, joint/private development) and water-dependent use (Harborwalk extension), including the location of uses within buildings on tidelands, facilities dedicated for public use, and building heights. MassDOT's discussion of the SSX project relative to Chapter 91 requirements will include assessment of conservation of capacity for water-dependent use; shoreline utilization requirements, activation of Commonwealth Tidelands for public use; and standards for non-water-dependent infrastructure facilities.

A portion of the South Station site is located within the Fort Point Downtown Waterfront Municipal Harbor Planning Area, for which Phase 1 and Phase 2 Municipal Harbor Plans (MHPs) have been approved (March 8, 2004). The MHPs establish the planning area boundaries and outline planning principles for the Fort Point Downtown Waterfront Municipal Harbor Planning Area. Through a Municipal Harbor Plan amendment, the regulatory standards may be amended, provided the substitute provisions are consistent with the mandate of Chapter 91 to protect and preserve the rights of Commonwealth residents to the tidelands. The substitute provisions also would provide equivalent public benefits to those that would be gained through the standard provisions, known as off-setting provisions. With Build Alternative 3, the SSX project would require an amendment of the Fort Point Downtown Waterfront MHP to provide flexibility from Chapter 91 standards preliminarily related to building height, open space, ground floor uses, and setback from the shoreline.

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# Attachment B
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**Figure 1, Sheet 1: Site Location Map – USGS Boston South Quad.** Figure 1, Sheet 1 shows the major project elements on the USGS Boston South Quad map: South Station, the USPS General Mail Facility, the Bus Terminal and the BTD Tow Lot Layover Alternative site. This figure presents coordinates for the South Station and the alternative layover site. South Station is located at latitude 42 degrees north, 12 minutes, and 7.35 seconds and longitude 71 degrees west, 3 minutes, and 18.77 seconds. The BTD Tow Lot is located at latitude 42 degrees north, 20 minutes, and 19.21 seconds, and longitude 71 degrees west, 3 minutes, and 46.21 seconds.

**Figure 1, Sheet 2: Site Location Map – USGS Newton and Boston South Quad**. Figure 1, Sheet 2 shows the major project elements on the USGS Newton Boston South Quad map: the Beacon Park Yard Layover Alternative site. This figure presents coordinates for the Beacon Park Yard Alternative Layover site, which is located at latitude 42 degrees north 21 minutes and 19.85 seconds, and longitude 71 degrees west, 7 minutes and 27.84 minutes.

**Figure 1, Sheet 3: Site Location Map – USGS Norwood Quad.** Figure 1, Sheet 3 shows the major project elements on the USGS Norwood Quad map: the Readville Yard 2 Alternative Layover site. This figure presents coordinates for the Readville Yard 2 Alternative Layover site, which is located at latitude 42 degrees north 14 minutes and 16.818 seconds, and longitude 71 degrees west, 7 minutes and 53.508 minutes.

**Figure 2, Sheet 1: Existing Major Transportation Facilities Map – South Station and BTD Tow Lot Layover Facility Vicinity.** Figure 2, Sheet 1 shows the major transportation facilities, including the Northeast Corridor Main Line, which extends west of the site, adjacent to and south of the Massachusetts Turnpike (I-90), and the Fairmont Line/Old Colony Railroad, which extends south of the site and east of the Central Artery (I-93). The figure also shows the MBTA subway lines directly serving South Station, which are the Red Line and the Silver Line.

**Figure 2, Sheet 2: Existing Major Transportation Facilities Map – Beacon Park Yard Layover Facility Vicinity.** Figure 2, Sheet 2 shows the major transportation facilities which extend along the north side of the Beacon Park Yard Alternative Layover site: the Massachusetts Turnpike (I-90), including the Allston Toll Plaza, and Soldiers Field Road to the east. The Framingham/Worcester commuter rail line also extends along the south side of the Beacon Park Yard Alternative Layover site.

**Figure 2, Sheet 3: Existing Major Transportation Facilities Map, Readville Yard 2 Layover Facility Vicinity.** Figure 2, Sheet 3 shows the major transportation facilities in the vicinity of the Readville Yard 2 Alternative Layover, which extends to the east of the MBTA Fairmont Line north of where it rejoins with the Northeast Corridor Main Line. The Readville Station is also south of the yard area.

**Figure 3, Sheet 1: Historical Resources Map – South Station and BTD Tow Lot Layover Facility Vicinity.** Figure 3, Sheet 1 shows the National Register-listed South Station headhouse and the adjoining Leather District and Fort Point Channel District. The USPS general mail facility and the Stone and Webster Building are listed on the Inventory of Historic and Archaeological Assets of the Commonwealth.

**Figure 3, Sheet 2: Historical Resources Map – Beacon Park Yard Layover Facility Vicinity.** Figure 3, Sheet 2 shows the National Register-listed Charles River Basin and the Harvard Avenue Historic District in the vicinity of the Beacon Yard Alternative Layover site, as well as several properties listed on the Inventory of Historic and Archaeological Assets of the Commonwealth: the Henry W. Longfellow House, the Ashford Street area, the Boston University Physical Plant Building, and the Boston University Athletics Department Building.

**Figure 3, Sheet 3: Historical Resources Map – Readville Yard 2 Layover Facility Vicinity.** Figure 3, Sheet 3 shows that the Readville Yard 2 Alternative Layover site is encompassed by the Readville Industrial area, which is listed on the Inventory of Historic and Archaeological Assets of the Commonwealth. The site is also in the vicinity of the National Register-listed Neponset Valley Parkway.

**Figure 4, Sheet 1: Environmental Resources and Constraints Map – South Station Vicinity.** Figure 4, Sheet 1 shows wetlands, floodplains, the City of Boston Groundwater Conservation Overlay District, and identified potential hazardous materials sites in the vicinity of South Station. This figure shows estuarine and marine deepwater and 100-year floodplain along Fort Point Channel adjoining South Station to the east, a groundwater conservation overlay district adjoining South Station to the west and overlaying the project site where it extends along the NEC Main Line west of the Cove Interlocking. There is also an underground storage tank and a site with Activity and Use Limitations within the project site, and a 21E site adjoins South Station to the west.

**Figure 4, Sheet 2: Environmental Resources and Constraints Map – BTD Tow Lot Layover Facility Vicinity.** Figure 4, Sheet 2 shows wetlands, floodplains, the City of Boston Groundwater Conservation Overlay District, and identified potential hazardous materials sites in the vicinity of the BTD Tow Lot Alternative Layover Facility. This figure shows a groundwater conservation overlay district that adjoins the site to the west, and areas west of the site also include an underground storage tank, a 21E site, and a site with Activity and Use Limitations. Estuarine and marine deepwater and 100-year floodplain along Fort Point Channel are situated more than 1,000 feet north of the alternative layover site.

**Figure 4, Sheet 3: Environmental Resources and Constraints Map – Beacon Park Yard Layover Facility Area.** Figure 4, Sheet 3 shows wetlands, floodplains, the City of Boston Groundwater Conservation Overlay District, and identified potential hazardous materials sites in the vicinity of the Beacon Park Yard Alternative Layover site. This maps shows that the Beacon Park site is within 250 feet of the 100-year flood zone along the Charles River and within approximately 1,000 feet of an underground storage tank and three sites with Activity and Use Limitations.

**Figure 4, Sheet 4: Environmental Resources and Constraints Map – Readville Yard 2 Layover Facility Vicinity.** The Readville Yard 2 Alternative Layover site adjoins the west side of the Neponset River and is within approximately 500 feet north of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern. It is also in the general vicinity of several underground storage tank and a site with Activity and Use Limitations to the west.

**Figure 5, Sheet 1: Coastal Resources Map – South Station and BTD Tow Lot Layover Facility Vicinity.** Figure 5, Sheet 1 shows the location of the coastal zone which envelopes the majority of the South Station project site and the BTD Tow Lot site, and the municipal harbor planning area around South Station, as well as existing mean high water and historic tidelands at both sites.

**Figure 5, Sheet 2: Coastal Resources Map – Beacon Park Yard Layover Facility Vicinity.** Figure 5, Sheet 2 shows the relationship of the 1894 historic tidelands and ordinary high water mark (2.0 feet NAVD88) along the Charles River to the Beacon Park Yard Alternative Layover Facility. Only the historic mean high water mark along a tributary extends across the eastern portion of Beacon Park Yard, which extends within 200 to 300 feet of the Charles River shoreline. The site is outside the designated coastal zone.

**Figure 6, Sheet 1: Historic Shoreline – 1770.** Figure 6, Sheet 1 shows the relationship of the 1770 historic tidelands and the existing mean high water mark (at elevation 4.3 feet NAVD 88) to South Station and the BTD Tow Lot Alternative Layover Facility site. South Station adjoins the current mean high water mark at the edge of Fort Point Channel and is located partially within the historic mean low water mark and almost entirely within the historic mean high water mark. The BTD Tow Lot Alternative Layover Facility site is located partially within the historic mean low water mark and entirely within the historic mean high water mark.

**Figure 6, Sheet 2: Historic Shoreline – 1846.** Figure 6, Sheet 2 shows the relationship of the 1846 historic tidelands and the existing mean high water mark (at elevation 4.3 feet NAVD 88) to South Station and the BTD Tow Lot Alternative Layover Facility site. South Station adjoins the current mean high water mark at the edge of Fort Point Channel and is located partially within the historic mean low water mark and almost entirely within the historic mean high water mark. The BTD Tow Lot Alternative Layover Facility site is located partially within the historic mean low water mark and entirely within the historic mean high water mark.

**Figure 6, Sheet 3: Historic Shoreline – 1852.** Figure 6, Sheet 3 shows the relationship of the 1852 historic tidelands and the existing mean high water mark (at elevation 4.3 feet NAVD 88) to South Station and the BTD Tow Lot Alternative Layover Facility site. South Station adjoins the current mean high water mark at the edge of Fort Point Channel and is located partially within the historic mean low water mark and almost entirely within the historic mean high water mark. The BTD Tow Lot Alternative Layover Facility site is located partially within the historic mean low water mark and entirely within the historic mean high water mark.

**Figure 6, Sheet 4: Historic Shoreline – 1860.** Figure 6, Sheet 4 shows the relationship of the 1860 historic tidelands and the existing mean high water mark (at elevation 4.3 feet NAVD 88) to South Station and the BTD Tow Lot Alternative Layover Facility site. South Station adjoins the current mean high water mark at the edge of Fort Point Channel and is located partially within the historic mean low water mark and almost entirely within the historic mean high water mark. The BTD Tow Lot Alternative Layover Facility site is located partially within the historic mean low water mark and entirely within the historic mean high water mark.

**Figure 6, Sheet 5: Historic Shoreline – 1894.** Figure 6, Sheet 5 shows the relationship of the 1894 historic tidelands and ordinary high water mark (2.0 feet NAVD88) along the Charles River to the Beacon Park Yard Alternative Layover Facility site. Only the historic mean high water mark along a tributary extends across the eastern portion of Beacon Park Yard, which extends within 200 to 300 feet of the Charles River shoreline.

**Figure 7, Sheet 1: No Build Alternative.** Figure 7, Sheet 1 shows the No Build Alternative, in which South Station would remain as it exists today, and no additional private development beyond the previously approved development would be constructed.

**Figure 7, Sheet 2: Alternative 1 – Transportation Improvements Only.** Figure 7, Sheet 2 shows Alternative 1, Transportation Improvements Only, which includes demolition of the USPS general mail facility and expansion of South Station including 7 new tracks and new passenger concourse areas for a total 410,000-square-foot facility. Dorchester Avenue would be restored for public use, but no provision for future joint/private development would be made.

**Figure 7, Sheet 3: Alternative 2 – Joint/Private Development Minimum Build.** Figure 2, Sheet 3 shows a three-dimensional rendering, looking west of Alternative 2, Joint/Private Development Minimum Build. Alternative 2 would incorporate foundations to accommodate future joint/private development that would comply with existing Chapter 91 and Boston Zoning Code requirements and Fort Point Downtown municipal harbor planning area requirements. This would allow for approximately 850,000 square feet of mixed use development, with building heights of up to 12 stories and 50 percent open space.

**Figure 7, Sheet 4: South Station Alternative Schematics, Alternative 3 – Joint/Private Development Maximum Build.** Figure 7, Sheet 4 shows a three-dimensional rendering, looking west, of Alternative 3, Joint Development Maximum Build. Alternative 3 would incorporate foundations to accommodate the maximum building height allowable under the Federal Aviation Administration's height restrictions for future joint/private development over the proposed reconstructed South Station. This would allow for approximately 2.5 million square feet of mixed use development, with a building height up to 26 stories.

**Figure 8, Dorchester Avenue Restoration/Harborwalk Extension Potential Cross-Sections.** Figure 8 shows cross-sections for three options to incorporate bicycle access along a publicly accessible Dorchester Avenue that incorporates a new 25-foot wide Harborwalk along Fort Point Channel. All options incorporate two 11-foot travel lanes, and two 8-foot parking lanes, flanked on the west by a 21- to 27-foot sidewalk/storefront zone adjoining South Station. For bicycle access, Cross-section A also incorporates two 5-foot bicycle lanes, Cross-section B includes a 14-foot two-way cycle track along the Harborwalk, and Cross-section C includes two 5-foot bike lanes separated from each parking lane by 3-foot buffers.

**Figure 9, Harborwalk at Dorchester Avenue.** Figure 9 shows, on the top panel, a photograph of the existing Harborwalk at Dorchester Avenue at the Federal Reserve Bank, looking south. The bottom panels shows a photograph, looking south, of the existing Dorchester Avenue adjoining the USPS general mail facility, which is currently closed to public access.

SOUTH STATION
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# Layover Facility Alternatives Analysis

*March 2013 Version 0*

massDOT
Massachusetts Department of Transportation

**Back of cover page**

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# 1. Introduction

The Massachusetts Department of Transportation (MassDOT), in cooperation with the Massachusetts Bay Transportation Authority (MBTA), National Railroad Passenger Corporation (Amtrak) and the Federal Railroad Administration (FRA), is evaluating an expansion of Boston's South Station. The South Station Expansion (SSX) project is being undertaken by MassDOT to allow for additional intercity and high-speed rail (HSR) service into Boston's South Station without limiting the MBTA's ability to deliver efficient commuter rail service.

The current track capacity, layout, and operations of South Station limit the ability to achieve projected future expanded services. The SSX project includes planning, environmental reviews, and preliminary engineering for five primary elements of the project:

1. **Expand the South Station terminal facilities**, including the addition of up to seven (7) tracks and platforms and construction of a new passenger concourse and other amenities.
2. **Acquire and demolish the U.S. Postal Service (USPS) general mail facility** located on Dorchester Avenue adjacent to South Station, which will provide an approximate 16-acre site onto which to expand South Station. (Note that the relocation of the USPS facility will be the subject of a separate environmental review process by others.) Dorchester Avenue will be restored for public and station access.
3. **Create an extension of the Harborwalk along reopened Dorchester Avenue.**
4. **Provide for the possibility of future joint public/private development** adjacent to and over an expanded South Station.
5. **Provide adequate rail vehicle layover space** to address existing and future intercity and commuter rail service needs.

Figure 1 illustrates the South Station project area, which encompasses the South Station headhouse, the South Station Bus Terminal, and the USPS facility.

The focus of this report is the layover element of the project. This report assesses existing and future layover capacity needs at South Station and identifies and evaluates potential layover sites to accommodate future growth. It is organized in six chapters:

- **Chapter 1 – Introduction:** Chapter 1 provides context for the layover alternatives analysis by describing the history of South Station, the purpose of the SSX project, and an overview of how current operations are hindered by limited layover capacity.
- **Chapter 2 – Existing Conditions:** Chapter 2 describes the existing layover facilities and compares the layover capacity to existing demands of Amtrak and the MBTA, thereby establishing a baseline condition to aid in future projections.
- **Chapter 3 – Future Conditions**: Building on the baseline condition presented in Chapter 2, Chapter 3 develops a forecasted supply and demand relationship to the year 2025 and 2040, thereby defining the future need that will help identify and evaluate new or expanded layover sites for consideration.
- **Chapter 4 – Identification of Layover Sites:** Chapter 4 presents the candidate layover sites that were considered for South Station operations along with the evaluation criteria used to identify these potential locations. A total of 28 layover sites are presented in this chapter.

- **Chapter 5 – Screening of Layover Sites:** In Chapter 5, the 28 candidate layover sites are evaluated based on a two-tiered screening process, which culminates in a set of three layover sites that are recommended to be carried forward for further operational analysis, environmental analysis and advanced conceptual design.
- **Chapter 6 – Conclusions and Next Steps:** Chapter 6 summarizes the next steps involving the conceptual design, refinement, and vetting of the recommended layover site(s).

## 1.1. Layover Alternatives Analysis Study Area

An integral component of South Station operations is the utilization of nearby layover yards to store, service, inspect and maintain trains when they are not in service. Layover yards are critical to operations because they provide a location to stage trains during off-peak periods, thereby keeping unused trains off active tracks to minimize congestion at stations. Some are also used for daily service and inspection activities.

As depicted on Figure 2, Amtrak and the MBTA currently utilize four layover yards for operations at South Station. They are as follows:

1. Amtrak's Southampton Street Yard;
2. Amtrak's Front Yard;
3. MBTA's South Side Service and Inspection Facility; and
4. MBTA's Readville - Yard 2.

This report demonstrates how South Station lacks sufficient layover capacity under current operations and how this will constrain future growth potential without new or expanded layover space. Keeping the current needs as a baseline, the analyses in this report consider projected operations and layover needs for Amtrak and the MBTA for the 2025 and 2040 planning horizons.

**Figure 1 South Station Expansion Project Area Map**

Figure 1: **South Station Expansion Project Area Map**

**Figure 2 Existing Layover Facilities**

## 1.2. Background

South Station is the principal passenger rail hub in New England. South Station was constructed over 110 years ago and is one of the most significant and iconic architectural structures in the City of Boston. When it first opened in 1899, South Station had 28 tracks but now has only 13, constraining current and future rail mobility not only within Massachusetts but also throughout southern New England and along Amtrak's Northeast Corridor (NEC).

Amtrak owns and operates 363 miles of the 457-mile NEC between Washington and Boston (a total of 1,219 track-miles). South Station is the terminus of Amtrak's NEC service, as well as Amtrak's Lake Shore Limited service from Chicago via Albany. Annually, the NEC carries 13 million Amtrak passengers on the Acela Express and Northeast Regional Amtrak services. Amtrak's NEC is the busiest railroad in North America, with more than 2,200 trains operating over some portion of the Washington-Boston route each day. Approximately 1.36 million Amtrak passengers traveled through South Station in 2011.[1] As the only high-speed rail service in the U.S., Amtrak's ridership share on the NEC continues to grow and now dominates the air/rail market (75 percent of the New York-Washington market and 55 percent of the New York-Boston market).

South Station is also the terminus for the western and southern lines of the MBTA's commuter rail system, and provides connections to the MBTA Red Line and to Logan International Airport via the MBTA Silver Line. South Station's bus terminal is also a hub for intercity, regional, and local bus service in eastern Massachusetts. The MBTA's commuter rail, Red Line subway, Silver Line busway, and fixed-route city buses all serve South Station. The MBTA owns the 38 miles of the NEC between the Massachusetts/Rhode Island border and Boston/South Station that is operated and maintained by Amtrak through an operating agreement. The MBTA currently provides commuter rail service on seven branch lines on the southern portion of their system, which includes the Framingham/Worcester, Needham, Franklin, Providence/Wickford Junction, Stoughton, Fairmount, and Old Colony (Middleborough, Plymouth/Kingston, and Greenbush) lines.

In May 2010, Amtrak finalized the *Northeast Corridor Infrastructure Master Plan*[2] which identified initial infrastructure improvements needed to bring the NEC into a state of good repair, providing sufficient capacity to accommodate estimated ridership demand through 2030. Amtrak projects that by 2040, overall NEC ridership will increase by nearly threefold. Amtrak's goal is to provide hourly service between Boston and New York City with an overall trip time of approximately three hours (20-30 minutes faster than the existing trip time). This level of service will require reliable infrastructure, sufficient capacity, changes to existing track alignment, and rolling stock capable of operating at high speeds and accelerating quickly to reduce the trip time between Boston and New York. In order to realize the cumulative 50 percent increase in Amtrak high-speed and intercity passenger rail service to Boston called for in Amtrak's 2010 *Northeast Corridor Infrastructure Master Plan*, South Station and its support facilities must be expanded and improved.

South Station is operating at its design capacity for efficient train operations. All 13 tracks are fully utilized by Amtrak and the MBTA. As ridership and service levels have increased, the capacity at the MBTA's existing layover facilities during the mid-day has also been exceeded. In addition to trains that layover at one of the four facilities, due to the combination of layover capacity constraints, track capacity constraints, and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover yards. The use of platform

[1] Amtrak. *Amtrak National Fact Sheet, FY 2011*; Amtrak Media Relations: June 2012, http://www.amtrak.com/
[2] Amtrak. *Northeast Corridor Infrastructure Master Plan*, June 4, 2010. www.amtrak.com

tracks for layover increases congestion at the terminal and creates operational conflicts for revenue trains, especially during morning and evening peak periods. The problem is exacerbated in inclement weather, when trains run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur.

Regionally there is substantial future growth in passenger rail service anticipated – including 50 percent more Amtrak high speed and intercity service planned as part of Amtrak's long-term vision for the NEC.[3] With anticipated increased service demands for both Amtrak and the MBTA, the lack of layover capacity will become a major constraint and limit the planned growth in rail service at South Station. To meet these needs it is critical that layover facilities provide sufficient capacity to accommodate future service increases and fleet expansions. This would allow for optimal efficiency and flexibility at South Station for revenue operations. The expansion of South Station along with additional layover capacity will reduce operating capacity constraints that currently impact on-time performance for services into the station.

[3] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update*. July 9, 2012. www.amtrak.com

# 2. Existing Conditions

This chapter presents a review of existing conditions, including an inventory of the four existing layover areas and the type of activities conducted at each. Also included is a review of current layover needs for Amtrak and the MBTA compared to the existing capabilities.

As depicted on Figure 2 through Figure 6, there are four existing layover areas that support South Station operations - two are owned by Amtrak (Southampton Street Yard and Front Yard) and two are owned by the MBTA (South Side Service and Inspection Facility and Readville - Yard 2). In general, the purpose of a layover facility is to provide a central location, easily accessible to service and inspection facilities and maintenance facilities, to stage trains and relieve train crews between revenue runs, typically during off-peak hours in the midday period. Service and inspection facilities are used to perform short interval inspections of the equipment as required by the FRA, railroad company policy and manufacturer guidelines, and to perform regular service on the equipment, such as fueling, sanding, sanitary system cleaning, watering, and washing.

## 2.1. Amtrak Layover Facilities

This section describes Amtrak's existing layover areas that support South Station operations, namely the Southampton Street Yard and the Front Yard. Table 1 summarizes the activities that occur at each yard which are illustrated on Figure 3.

**Table 1 Amtrak Layover Facilities**

| | Main Line Access | Train Storage | Vehicle Inspection | Office/Welfare Space | Running Repair | Wheel Truing | Fueling and Sanding | Sanitary and Water | Interior Cleaning | Washing | Equipment and Materials Storage | Material Control | Food Service | Security and Lighting | Parking and Site Circulation | Maintenance-of-Way, Communication & Signals Support Areas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amtrak's Southampton Street Yard | X | X | X | X | X | X | X | X | X | X[1] | X | X | X | X | X | X |
| Amtrak's Front Yard | X | X | | X | | | | | X | | X | | | | X | X |

[1] Amtrak's wash facility is situated on the wet loop track at Widett Circle, adjacent to Southampton Street Yard.

### 2.1.1. Amtrak's Southampton Street Yard

As illustrated on Figure 3, the Southampton Street Yard is located north of Southampton Street, between the MBTA Old Colony Main Line and the Dorchester Branch. The Southampton Street Yard is owned and operated by Amtrak and serves as the primary train storage and layover facility for Amtrak in Boston. The MBTA has an agreement with Amtrak to store train consists[4] at Southampton Street Yard during daylight hours. The entire yard has an overhead contact system, or catenary, to provide power to electric

[4] A consist is railroad term used to describe the physical makeup of a combination of locomotives and coaches coupled together and operating as one unit.

trains. Of the 16 tracks at Southampton Street Yard, seven are dedicated to shop access for the Amtrak Southampton Street Yard Maintenance Facility, the HSR building and the Service and Inspection building. The remaining nine tracks, of which four are used by Amtrak and five are used by MBTA during the midday period, range from approximately 1,100 feet to 1,500 feet in storage length. Amtrak has access to all yard tracks during the overnight period.

The service functions located at the Southampton Street Yard maintenance facility support all Amtrak operations in metropolitan Boston including the Acela Express, Northeast Regional, Lake Shore Limited, and the Downeaster service trains. Currently, Acela Express and Amtrak Regional trains are serviced in separate on-site buildings, accessible from the seven dedicated shop tracks on the western portion of the property (which include the Amtrak Police, material control department, yardmaster office, hazmat building, engineering building, food service, and waste treatment facility). Although the Downeaster service does not operate into South Station, the Southampton Street Yard is currently the nearest maintenance facility operated by Amtrak and is therefore used to perform maintenance and repairs for that equipment.

The majority of Amtrak's layover needs are for overnight storage, allowing the MBTA to utilize a portion of the yard during the midday hours. The MBTA currently utilizes five tracks located at the yard, tracks 13 through 17, for midday layover of trains. These tracks range from approximately 1,300 feet to 1,500 feet in storage length as measured from clearance point to clearance point. The MBTA's use of these tracks is limited to midday hours only (approximately 10 a.m. to 4 p.m.). Typically, the MBTA utilizes one of these tracks as a passing track and the remaining four tracks for train storage. Although the tracks are not long enough to accommodate two full-length consists (one locomotive with eight-coaches), it is possible to sequence the storage of two trainsets on a single track at the same time given that MBTA train consists currently vary from five coaches to eight coaches in length. Along with several individual Amtrak support buildings, a MBTA Mechanical Department office trailer is located at the site.

The Southampton Street Yard has a direct connection to Amtrak's train wash shed which is located on the wet/dry loop track as illustrated on Figure 4. The wet/dry loop tracks are situated north of Front Yard and west of the MBTA's South Side Service and Inspection facility in an area known as Widett Circle. There is a direct track connection from the Southampton Street Yard which crosses the Dorchester Branch at-grade to both tracks near Widett Circle. The tracks are primarily used by Amtrak to turn trains and to wash trains in the train wash shed.

### 2.1.2. Amtrak's Front Yard

As shown on Figures 3 and 4, Amtrak's Front Yard is located east of the Widett Circle Access Road and north of the Dorchester Branch, between Amtrak's Southampton Street Yard maintenance facility and the wet/dry loop tracks for the Amtrak train wash building. The yard, owned by Amtrak, consists of five parallel stub-ended tracks; it is not equipped with an overhead catenary system. Each track is approximately 575-feet in length and capable of storing consists with six coaches or less.

The yard is currently used for layover of MBTA commuter train consists on three of the tracks. The remaining two tracks are currently used for Amtrak storage of on-track, non-revenue equipment and maintenance-of-way materials. Two modular office trailers and several storage containers are situated at the southwest end of the yard and serve as office space for employees of the MBTA's current commuter rail operator, Massachusetts Bay Commuter Rail (MBCR).

**Figure 3 Amtrak-Owned Layover Facilities**

Figure 3: **Amtrak-Owned Layover Facilities**

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 4 Amtrak's Wet/Dry Loop Tracks**

Figure 4: **Amtrak's Wet/Dry Loop Tracks**

## 2.2. MBTA Layover Facilities

This section describes the MBTA-owned layover areas that support South Station operations: the South Side Service and Inspection facility and Readville - Yard 2. Table 2 summarizes the activities that occur at each yard which are illustrated on Figures 5 and 6.

**Table 2 MBTA Layover Facilities**

| | Main Line Access | Train Storage | Vehicle Inspection | Office/Welfare Space | Running Repair | Wheel Truing | Fueling and Sanding | Sanitary and Water | Interior Cleaning | Washing | Equipment and Materials Storage | Food Service | Security and Lighting | Parking and Site Circulation | Maintenance-of-Way, Communication & Signals Support Areas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MBTA's South Side Service and Inspection | X | | X | X | X | | X | X | X | X | X | | X | X | X |
| MBTA's Readville - Yard 2 | X | X | X | X | X | X | | | X | | X | | X | X | X |

### 2.2.1. MBTA's South Side Service and Inspection Facility

The South Side Service and Inspection facility is owned and operated by the MBTA and is situated adjacent to Widett Circle, between South Station and Amtrak's Southampton Street Yard as shown on Figure 5. The facility consists of four buildings with approximately 57,000 square feet of indoor space, including a two-track running maintenance facility used to perform service, inspections, and running repair functions to MBTA's south side train consists. Two additional outdoor tracks, each approximately 785-feet long, parallel the South Side Service and Inspection facility building to the east. These are primarily used for locomotive fueling and train servicing.

The MBTA's South Side Service and Inspection facility building has provisions for adding essential supplies (fuel, sand, lubricants, and coolant) to a locomotive as well as sanitary dumping stations and water for coaches equipped with restrooms. The South Side Service and Inspection facility maintenance shop is equipped with an overhead crane, single axle drop table, car washer, and ground power stations. Two 250,000-gallon above ground storage tanks (with containment) are available for use for the bulk storage of diesel fuel. Other buildings include a parts warehouse, a fuel pump house and the Engineering Department's maintenance building. As referenced in the *MBTA Commuter Rail Infrastructure Needs Assessment Study*,[5] inspection and fueling records indicate that each consist is fueled daily and the maintenance/service activity at the MBTA's Service and Inspection building is four to six consists each day. At this rate, each of the MBTA's 38 consists would return to the facility once every two weeks for service.

[5] Massachusetts Bay Transportation Authority. *Commuter Rail Infrastructure Needs Assessment Study*, April 30, 2004.

### 2.2.2. MBTA's Readville - Yard 2

Shown in Figure 6, the MBTA's Readville - Yard 2 is located in the Readville section of Boston in the northeast quadrant of the intersection of the NEC and the MBTA Dorchester Branch. It is approximately 8.8 track-miles south of South Station. Roadway access is via Wolcott Court. Readville - Yard 2 currently serves as a layover yard and maintenance repair facility. This is the largest layover yard used by the MBTA for their south side service. The layover yard has a total of 12 tracks, ranging from 594 feet to 1,129 feet in length, with capacity to accommodate two six-coach consists, one seven-coach consist, and nine eight-coach consists. It is possible to store up to 10 eight-coach consists at Readville - Yard 2, however, the functionality of two shorter adjacent yard tracks is operationally limited while the $10^{th}$ consist is laying over.

The yard features paved roads to access all tracks as well as auxiliary ground power for plug-ins. The equipment shop, while not a full service and inspection facility, provides many functions. Three tracks of two coach-lengths each are housed within the shop and provide a pit track for undercarriage/brake inspection, wheel truing, cab signal installations, equipment modifications, and special projects. The shop also features caged storage for spare parts and a car mover capable of shuttling cars within the shop area. Numerous modular buildings and storage containers are present at this site as well as laydown areas for track materials.

**Figure 5 MBTA's South Side Service and Inspection Facility**

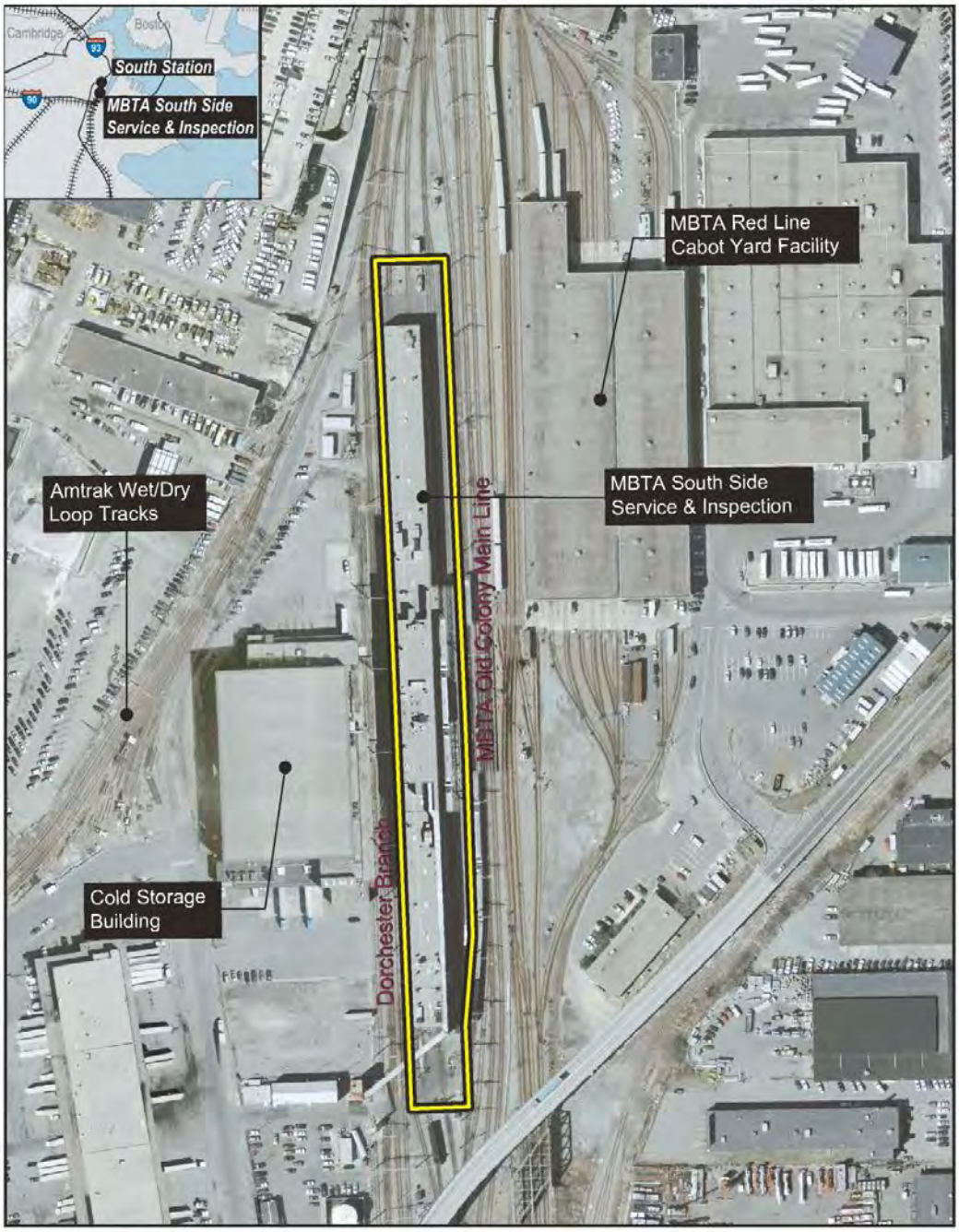


Figure 5: **MBTA's South Side Service and Inspection Facility**

**Figure 6 MBTA's Readville - Yard 2**

Figure 6: **MBTA's Readville - Yard 2**

## 2.3. Existing Layover Need

This section describes the existing layover needs necessary to support Amtrak's and the MBTA's current operations at South Station.

### 2.3.1. Amtrak

Table 3 summarizes the existing layover requirements for Amtrak during the midday and overnight. All of Amtrak's layover needs are accommodated at the Southampton Street Yard layover. As discussed previously, Amtrak's Front Yard is not used by Amtrak for layover functions. It is used for MBTA layover and Amtrak non-revenue, rail-bound equipment storage as well as Amtrak maintenance-of-way material storage needs. Based on information received from Amtrak, the peak layover need for Amtrak's South Station service is eight consists during the midday and 13 consists overnight.

**Table 3 Existing Amtrak Layover Requirements**

| Southampton Street Layover Yard | Midday Layover Requirement (Number of Consists) | Overnight Layover Requirement (Number of Consists) |
|---|---|---|
| Southampton Street Yard | 4 | 9 |
| Southampton Service and Inspection Building | 2 | 2 |
| Southampton HSR Building | 2 | 2 |
| **Total** | **8** | **13** |

### 2.3.2. MBTA

Table 4 summarizes the present fleet composition of the MBTA trains serving South Station. Based on the existing equipment cycle provided by the MBTA,[6] a total of 38 consists are currently required to support its daily South Station commuter rail operations during a typical weekday. Of these 38 consists, 28 are in layover status during a typical midday period. These consists are a mixture of single and bi-level passenger coaches, ranging from five to eight coaches in length. Based on the current MBTA equipment cycle, the earliest trains to enter layover do so around 7:30 a.m. with the last leaving by 5:00 p.m. The shortest layover duration at a layover yard is approximately one hour and 34 minutes and the longest is approximately 10 hours and 25 minutes, with the average layover duration at approximately five hours and 30 minutes.

Each of the 38 consists operate throughout the day and have a "deadheading", or non-revenue period, of more than one hour when it moves to a layover yard. Trains requiring layover for less than one hour typically remain at South Station until the next revenue run. To ensure that a standard level of service is maintained on all lines, not all consists layover simultaneously – the layover periods are staggered. Figure 7 shows that the current weekday peak demand for layover space occurs between 1:00 p.m. and 2:00 p.m. where 28 of the 38 consists are in a layover status, or approximately 74 percent of the entire south side fleet. The midday layover needs of the MBTA complement the overnight layover needs of Amtrak allowing joint usage of the limited space at Southampton Street Yard.

[6] Massachusetts Bay Transportation Authority. *FY2011-FY2025 Commuter Rail Fleet Management Plan*, January 2011.

**Table 4 MBTA's Existing (2012) South Side Fleet Make-up**

| Consist Size | Number of Consists |
|---|---|
| 8 cars | 1 |
| 7 cars | 5 |
| 6 cars | 30 |
| 5 cars | 2 |
| **Total** | **38** |

**Figure 7 MBTA's Existing Weekday Layover Consists Requirement**

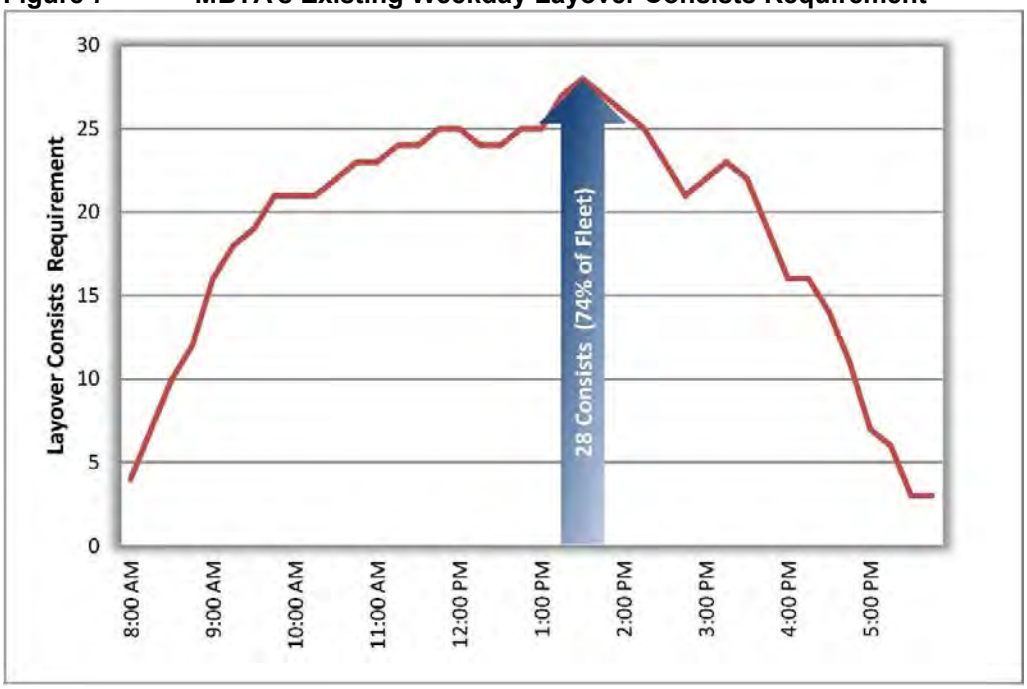


**Table 5 MBTA's Capacity at Existing Layover Yards**

| Layover Yard | Maximum Storage Capacity | |
|---|---|---|
| | Number of Consists | Consist lengths |
| Amtrak's Southampton Street Yard | 8 | 4 consists with 7 cars<br>4 consists with 8 cars |
| Amtrak's Front Yard | 3 | 3 consists with 6 cars |
| MBTA's South Side Service and Inspection | 4 | 4 consists with 8 cars |
| MBTA's Readville - Yard 2 | 10 [a] | 10 consists of variable lengths |
| **Total Capacity** | **25** | |
| **Total Peak Layover Demand (midday)** | **28** | |
| **Capacity vs. Demand** | **-3** | |

[a] Of the 12 yard tracks at Readville, it is possible to store up to 10, eight-coach consists. However, the functionality of two shorter adjacent yard tracks is limited while the 10th consist is laying over. The MBTA currently stores 10 consists of variable lengths at Readville - Yard 2.

As summarized in Table 5, the layover capacity for the MBTA's south side commuter rail service area is inadequate under existing conditions – there is a shortfall of three consists. This shortfall results in restrictive scheduling of revenue and non-revenue trains in and out of South Station. In addition to trains that layover at one of the four facilities, due to the combination of layover capacity constraints, track capacity constraints, and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover facilities. While not ideal, this is an accepted practice for layover times of less than one hour. However, given the layover yard capacity constraints, layover times at South Station can be greater than one hour. The use of the platform tracks as a layover site increases congestion at the terminal and creates operational conflicts, especially during morning and evening peak periods. This situation is exacerbated in inclement weather, when trains run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur. In order to expand service at South Station, the track use needs to be optimized along with added layover capabilities to improve the efficiency of the transition from active service to layover status.

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# 3. Future Conditions

Chapter 3 presents the future layover needs necessary to support Amtrak and MBTA operations at South Station projected to the year 2025 and 2040. This assessment includes several assumptions regarding layover yard utilization as well as projected service increases for Amtrak and the MBTA.

## 3.1. 2025 Layover Forecast Assumptions

The following assumptions were made to forecast Amtrak's and the MBTA's layover needs for 2025:

- It is anticipated that Amtrak will be able to meet its 2025 overnight layover needs within its layover facilities. This assumption is based on the following information from *The Amtrak Vision for the Northeast Corridor – 2012 Update:*[7]

  > Amtrak plans to replace the equipment currently operating on the NEC with new express equipment capable of operating at maximum speeds of 160 miles per hour (mph) in 2020. Amtrak is in the process of procuring new trainsets to support this service. The new trainsets could be longer than the current Acela express units, thereby requiring more track length for layover. With the procurement of new express trainset equipment, Amtrak plans to modify their Service and Inspection facilities (including those at Southampton Street Yard) to accommodate potentially longer consist lengths. Completion of the expanded Service and Inspection facilities is anticipated in 2015 to support the new NextGen HSR trainsets anticipated to be serving South Station by 2020.

- The MBTA's agreement with Amtrak allows the use of the Southampton Street Yard for midday layover needs. For the purposes of this analysis, it is assumed that the MBTA will continue to utilize Southampton Street Yard for midday train storage.
- For the purposes of this analysis, it is assumed that the MBTA will continue to use Amtrak's Front Yard, Readville - Yard 2, and the South Side Service and Inspection for layover in the same capacity as today.
- For purposes of this analysis, it is assumed that, by 2025, the MBTA will be using a four-track layover yard on an MBTA easement at Beacon Park Yard for layover of 12 consists.
- Trains laying over for less than one hour will remain at South Station and the percentage of the MBTA's south side fleet that will be in a layover status (74 percent) will not change from existing to future 2025 conditions.
- The MBTA's planned growth of 20 additional consists in 2025 and projected fleet mix is based on the MBTA's *FY2011-FY2025 Commuter Rail Fleet Management Plan (CRFMP).*[8]
- MBTA service will increase by one peak period round trip for each line (excluding Old Colony Railroad, which will have no peak increase).

[7] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update.* July 9, 2012. www.amtrak.com
[8] *FY2011-FY2025 Commuter Rail Fleet Management Plan*, Massachusetts Bay Transportation Authority, January 2011.

## 3.2. 2025 Layover Forecast

Based on the 2025 layover forecast assumptions, and in accordance with the MBTA's CRFMP, approximately 58 MBTA consists (comprised of 58 locomotives and 340 coaches) will be operating on the South Side by 2025. Table 6 summarizes the MBTA's projected fleet size compared to the existing fleet size.

**Table 6 MBTA's 2025 South Side Fleet Make-up**

| Consist Size | Existing 2012 Number of Consists | Projected 2025 Number of Consists |
|---|---|---|
| 8 cars | 1 | 14 |
| 7 cars | 5 | -- |
| 6 cars | 30 | 20 |
| 5 cars | 2 | 12 |
| 4 cars | -- | 12 |
| **Total** | **38** | **58** |

**Table 7 MBTA's 2025 Layover Capacity vs. Demand**

| | Existing 2012 | Projected 2025 |
|---|---|---|
| Number of Consists Needed to Support Service | 38 | 58 |
| Peak Layover Demand (Midday) | 28 | 43[a] |
| Layover Capacity | 25 | 37 |
| **Capacity vs. Demand** | **-3** | **-6** |

[a] The projected peak layover demand for 2025 is based on the assumption that the percentage of consists requiring layover (74 percent) would remain constant into the future.

**Figure 8 MBTA's 2025 Layover Peak Consists Requirement**

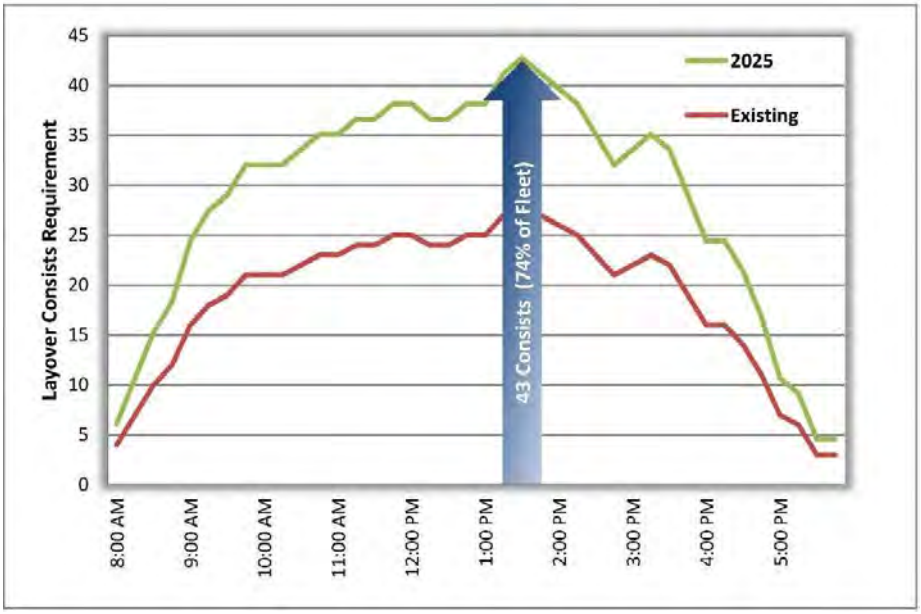


Table 7 summarizes the peak layover demand compared to capacity for existing conditions and 2025 conditions. In 2025, approximately 43 of the MBTA's 58 consists (approximately 74 percent) are projected to be in layover during the midday, which is also illustrated on Figure 8. With the addition of Beacon Park Yard, the layover capacity in 2025 is estimated to be 37 consists. In 2025, it is estimated that the MBTA would need additional layover capacity to accommodate six more train consists than can be currently accommodated at existing areas.

## 3.3. 2040 Layover Forecast Assumptions

The following assumptions were made to forecast Amtrak's and the MBTA's layover needs for 2040:

- Amtrak's *The Amtrak Vision for the Northeast Corridor – 2012 Update*[9] assumes that the NEC NextGen HSR projects will be completed from 2012-2040 to accommodate a maximum speed of 220 mph on a new NextGen HSR alignment. Additionally, the existing NEC will be used to operate the Shore Line Express route, which will provide express NextGen HSR service between Washington, D.C. and New York to meet higher demand along the southern portion of the NEC continuing along the NEC route between New Rochelle, New York and South Station in Boston. In the year 2040, NextGen HSR will be operated using a fleet of 46 new consists.
- In addition to the 46 NextGen HSR consists projected to be operated by Amtrak in 2040, additional equipment and layover needs will be needed to support other Regional service lines utilizing South Station as a terminal facility, including potential revival of the Massachusetts Inland Route connecting Boston, Framingham, Worcester, and Springfield. As part of the new Downeaster Route to Brunswick, Maine that started in November 2012, Amtrak is planning for potential construction of a new layover yard in Brunswick, which would be anticipated to handle some of the maintenance functions currently being performed at the Southampton Street Yard. Other potential future expansion plans for Amtrak Intercity Passenger Rail include restoration of service between North Station in Boston to Manchester/Concord, New Hampshire as well as other outlying destinations north of Boston.[10] Specific details of Amtrak's 2040 layover needs and service and inspection requirements (including track length and support facilities) are not yet known, but it is assumed that Amtrak will need layover space beyond what is currently available.
- By 2040, it is assumed that all MBTA consists will be eight bi-level coaches and one locomotive. For the purposes of this analysis, it is assumed that the MBTA will continue to accommodate its future midday train storage needs at Southampton Street Yard, however, the use of eight-car consists by the MBTA will reduce capacity from eight consists to four consists at this location.
- By 2040, the track lengths at Amtrak's Front Yard will not be able to accommodate the expanded MBTA eight coach and one locomotive consists.
- The MBTA will continue to use Readville - Yard 2 and the South Side Service and Inspection facility as layover sites in the same capacity as today.
- The MBTA will continue to use its easement at Beacon Park Yard for layover of 12 consists.
- Trains laying up less than one hour will remain in South Station.
- The number of consists anticipated for the MBTA commuter rail service in the year 2040 was calculated using the historic growth from 1990 through 2010 (an approximate 0.9 percent increase per year) and the planned growth projected by the MBTA from their CRFMP.

[9] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update.* July 9, 2012. www.amtrak.com
[10] Amtrak. *Northeast Corridor Infrastructure Master Plan*, June 4, 2010. www.amtrak.com

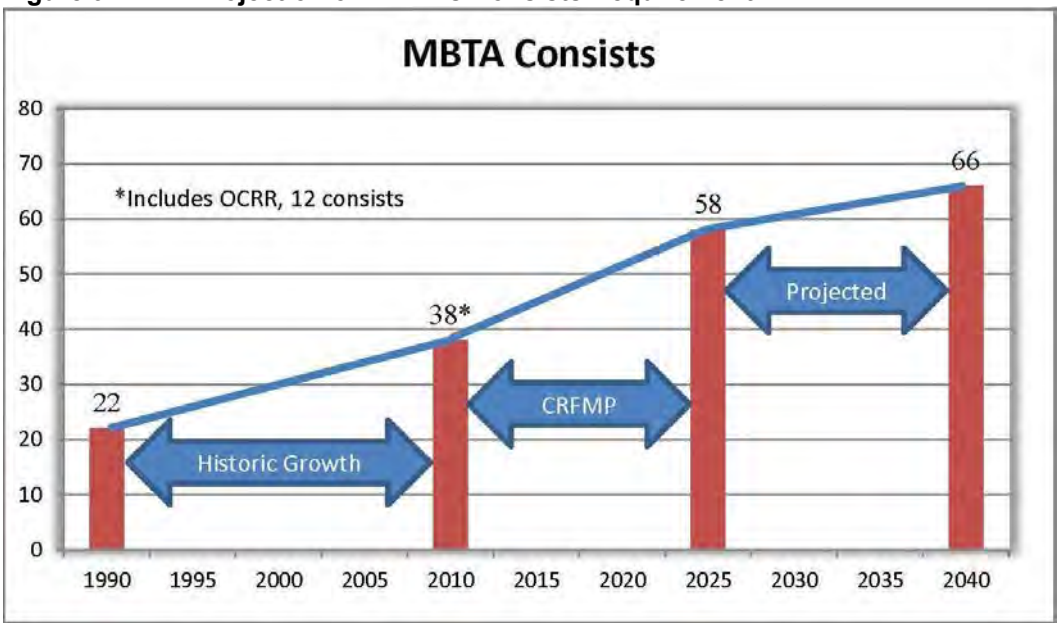
- To accommodate projected ridership demand, it is assumed that all MBTA commuter rail train consists will be expanded to eight bi-level coaches powered by a single locomotive to maximize seat utilization. Given the magnitude of changes required for consists of nine or more coaches, and the considerable capacity increase of the projected eight bi-level coach consists, consists longer than eight cars have not been assumed in this analysis. Based on the operating parameters of the existing equipment fleet, potential expansion to nine or more passenger coaches per train would require providing a second locomotive to each train consist in order to provide adequate acceleration. Additionally, existing station platforms and other support facilities would need to be substantially modified to accommodate consists longer than eight coaches and one locomotive.

## 3.4. 2040 Layover Forecast

Figure 9 illustrates the historic growth, planned growth, and projected growth from 2025 to 2040 needed to meet the MBTA's anticipated ridership demand on its south side. Of the MBTA's 66 consists projected in 2040, a total of 49 (approximately 74 percent) will require simultaneous layover during the midday period as shown on Figure 10.

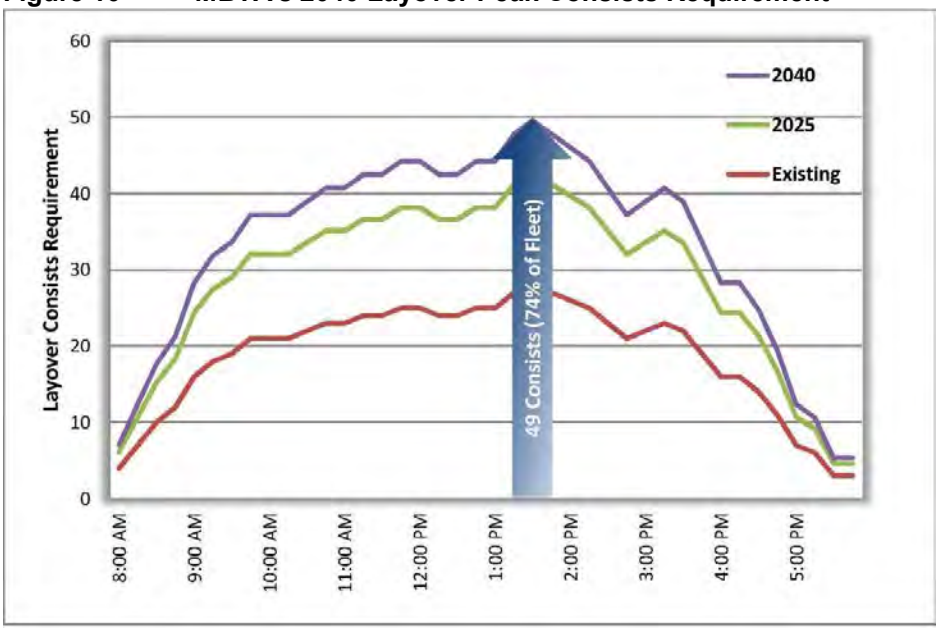
In order to accommodate a fleet of eight bi-level coaches and a single locomotive, all layover yards will need to be configured with minimum clear-track lengths of at least 760-feet. Therefore, the three tracks located at Amtrak's Front Yard will not be long enough to accommodate the MBTA's future eight-coach consists. The layover capacity currently used by the MBTA at Amtrak's Southampton Street Yard will be reduced to four consists.

**Figure 9 Projection of MBTA's Consists Requirement**




CRFMP = MBTA's Commuter Rail Fleet Management Plan
OCRR = Old Colony Railroad
* Includes service expansion of 12 consists for MBTA Old Colony Commuter Rail Line

**Figure 10 MBTA's 2040 Layover Peak Consists Requirement**




As summarized in Table 8, existing facilities will have the capacity to store only 30 of the 49 train consist spaces needed by 2040. This is seven consists fewer than the 37 available in 2025 due to the fact that the longer consists needed by 2040 will no longer be able to be accommodated at Front Yard and the reduced capacity at Southampton Street Yard. In 2040, given the increasing service demands from Amtrak and the MBTA, a total of 19 MBTA consists will not be accommodated for layover operations during the midday period.

**Table 8 MBTA's 2040 Layover Capacity vs. Demand**

| | Existing (2012) | Projected 2025 | Projected 2040 |
|---|---|---|---|
| Number of Consists Needed to Support Service | 38 | 58 | 66 |
| Peak Layover Demand (Midday) | 28 | 43 [a] | 49 [a] |
| Layover Capacity | 25 | 37 | 30 [b] |
| **Capacity vs. Demand** | **-3** | **-6** | **-19** |

[a] The peak layover demand for 2025 and 2040 is based on the assumption that the percentage of consists requiring layover (74 percent) would remain constant into the future.
[b] Assumes reduced capacity at Southampton Street Yard and Front Yard is not large enough to accommodate MBTA eight-car consists.

## 3.5. Summary of Layover Needs

As ridership and service levels have increased, the existing capacity at MBTA's layover facilities during the mid-day has also been exceeded. The layover capacity for the MBTA's south side commuter rail service area is inadequate under existing conditions: there is a shortfall of three consists. This shortfall results in restrictive scheduling of revenue and non-revenue trains in and out of South Station. In addition to trains that use one of the four layover areas, due to the combination of track and layover capacity constraints, and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover yards. The use of the platform tracks as a layover site increases congestion at the terminal and creates operational conflicts, especially during morning and evening peak periods. This situation is exacerbated in inclement weather, when trains

run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur.

As previously indicated, both Amtrak and the MBTA anticipate substantial future growth in passenger rail service. In its long-term vision for the NEC, Amtrak projects a nearly threefold increase in NEC ridership associated with HSR and intercity service. In its *The Amtrak Vision for the Northeast Corridor – 2012 Update,*[11] Amtrak projects the use of additional consists associated with its NEC NextGen HSR projects to be completed from 2020 to 2040. Amtrak also has stated plans to potentially expand Southampton Street Yard to accommodate its future overnight layover needs. Additional equipment and layover capacity will be needed to support other new regional rail services using South Station as a terminal facility, including revival of the Massachusetts Inland Route connecting Boston, Framingham, Worcester, and Springfield. By 2025, due to planned Amtrak and MBTA service expansions and increased MBTA ridership demand, it is estimated that the MBTA shortfall in layover capacity will be six train consists. By 2040, due to planned ridership growth and reduction of layover capacity at some yards due to increased MBTA consist lengths, it is estimated that the MBTA shortfall in layover capacity will be 19 train consists. Specific details of Amtrak's 2040 layover needs and service and inspection requirements (including track length and support facilities) are not yet known, but it is assumed that Amtrak will need layover space beyond what is currently available.

With anticipated increased service demands for both Amtrak and the MBTA, the lack of layover capacity will become a major constraint and limit the planned growth in rail service at South Station. While both Amtrak and the MBTA are constrained in their ability to store their current fleet of vehicles, MassDOT is also keenly aware of the growing opportunity to provide rail service using different types of vehicle technologies. As part of analyzing layover needs related to the South Station Expansion project, MassDOT will consider the layover and servicing needs of vehicle types beyond those in the current MBTA fleet. To meet the layover needs, it is critical that layover yards provide sufficient capacity to accommodate future service increases and fleet expansions. This will allow for optimal efficiency and flexibility at South Station for revenue operations. The expansion of South Station, along with additional layover capacity, will reduce operating capacity constraints that currently impact on-time performance for service into the station. The MBTA's midday layover needs could complement Amtrak's overnight layover needs, allowing joint usage of future layover space.

[11] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update*. July 9, 2012. www.amtrak.com

# 4. Identification of Layover Sites

This chapter describes how potential layover sites were identified and provides a description of each of the alternative sites. By reviewing previous plans and studies and working with MassDOT, the MBTA, City of Boston officials, and other project stakeholders, a list of 28 alternative sites was identified and reviewed to address the existing and future layover needs discussed in Chapters 2 and 3.

## 4.1. Layover Site Identification Criteria

Identifying candidate sites for new or expanded layover capabilities required, as an initial step, developing the key project criteria required for rail layover areas. The objective was to consider any reasonable site that could satisfy the site criteria necessary to adequately support railroad operations at South Station. The criteria include:

- Direct or nearly direct access to an existing rail line;
- Adjacent uses compatible with the characteristics of a layover facility, avoiding adjacency with residences, if possible;
- Site size and configuration suitable for the storage of eight car plus one locomotive consists; and
- Proximity to South Station, favoring locations closer to South Station over those farther away.

## 4.2. Candidate Layover Sites

Using the initial set of evaluation criteria, 28 potential sites were identified.

- Alternative 1 – Commuter Rail Maintenance Facility (CRMF)
- Alternative 2 – Beacon Park Yard
- Alternative 3 – Cold Storage
- Alternative 4 – Widett Circle
- Alternative 4A – Foodmart Road
- Alternative 5 – Boston Transportation Department Tow Lot
- Alternative 6 – Cabot Yard Red Line
- Alternative 7 – Cabot Yard Bus Facility
- Alternative 8 – Boston Department of Public Works
- Alternative 9 – Amtrak Southampton Street Service & Inspection
- Alternative 10 – Amtrak Southampton Street Service & Inspection – West
- Alternative 10A – Amtrak Front Yard
- Alternative 11 – Dorchester Avenue
- Alternative 12 – Von Hillern Street
- Alternative 13 – Boston Globe
- Alternative 14 – Freeport Way
- Alternative 15 – Freeport Street

- Alternative 16 – Victory Road
- Alternative 17 – NSTAR
- Alternative 18 – Forest Hills
- Alternative 19 – Lanesville Terrace
- Alternative 20 – Readville - Yard 2
- Alternative 20A – Readville - Yard 5
- Alternative 20B – Readville - Yard 1
- Alternative 21 – Arborway Bus Facility
- Alternative 22 – Arborway MBTA Design & Construction Building
- Alternative 23 – D Street
- Alternative 24 – A Street

These 28 locations are illustrated on Figure 11 and each site is depicted on Figures 12 through 39, provided in Attachment A. The following section provides a general description of each of the sites.

### **Alternative 1 – Commuter Rail Maintenance Facility** (Existing Rail Facility)

Alternative 1, Commuter Rail Maintenance Facility (CRMF), is located in Somerville and is depicted on Figure 12. The majority of the approximately 7.9-acre site is owned by the MBTA. This site is located approximately 6.9 track-miles from South Station with rail access from the MBTA Fitchburg Line via the Grand Junction Running Track (GJRT) and the MBTA Framingham/Worcester Line. The majority of this industrial-zoned site is located at the southern end of the Inner Belt Road industrial park area and currently houses the MBTA's CRMF and layover yard for north side commuter rail service. Primary existing functions for this site include heavy maintenance, service and inspection of railroad equipment, and staging of trains, mostly during the midday period.

### **Alternative 2 – Beacon Park Yard** (Existing Rail Facility in Transition)

Alternative 2, Beacon Park Yard, is located along Cambridge Street in the Allston neighborhood of Boston as shown on Figure 13. This site is located on the MBTA Framingham/Worcester Line approximately 3.8 track-miles from South Station, and is an industrial-zoned site located between the Massachusetts Turnpike Interstate Route 90 (I-90) Allston Toll Plaza and the MBTA Framingham/Worcester Line. This approximately 22.4-acre site has served for many years as a major freight rail yard and intermodal terminal in Boston for CSX Transportation, Inc. (CSXT). Today, the freight and intermodal functions are in transition to be relocated to central Massachusetts in 2013. The entire property is currently owned by Harvard University Beacon Yards LLC, and is encumbered by CSXT's operating rights. Provisions in an agreement with Harvard University include the rights for the MBTA to maintain within a portion of the overall site, among other uses, a double track MBTA main line and a four-track layover/layup yard for trains in active use on an MBTA railroad easement. Through another agreement, MassDOT has an option to acquire an easement over a portion of the overall site adjacent to the MBTA easement for the purpose of developing an intermodal facility for freight to, from or through the Port of Boston. Both areas are subject to existing rights in favor of CSXT that have not been released.

**Figure 11 Alternative Layover Sites - Regional Overview**

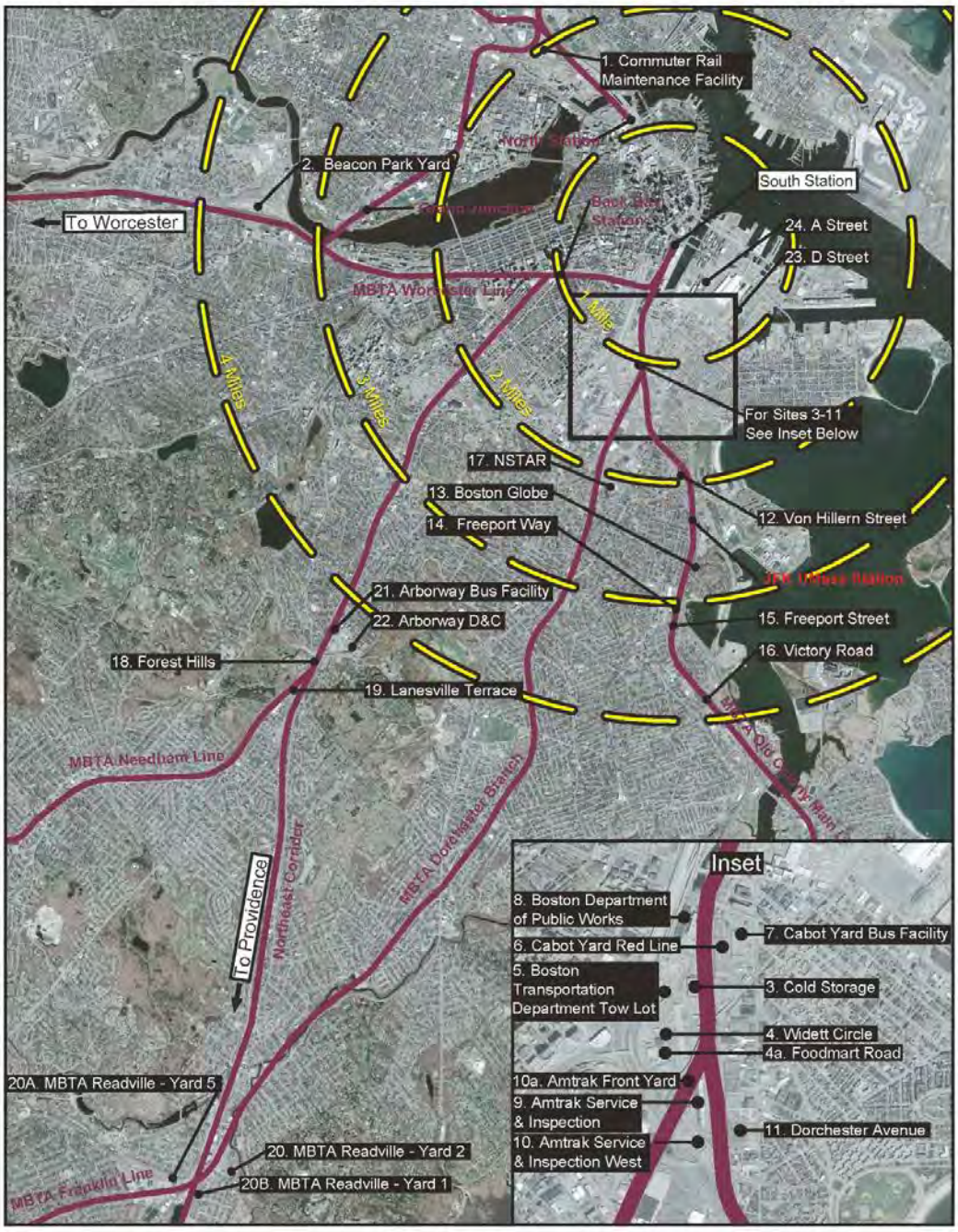



Figure 11: **Alternative Layover Sites**
Regional Overview

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

### **Alternative 3 – Cold Storage** (Private Businesses)

Alternative 3, Cold Storage, is located primarily[12] at 100 Widett Circle in Boston as shown on Figure 14. This site is located on the MBTA Dorchester Branch, approximately 0.9 track-miles from South Station. This approximately 6.6-acre site would require the use of two easements from Amtrak and the New Boston Food Market Development Corporation, and acquisition of property owned by Art Mortgage Borrower Propco 2006-2 LP. This industrial-zoned site is situated within Amtrak's wet/dry loop tracks just north of the New Boston Food Market, and adjacent to the MBTA Dorchester Branch and MBTA's South Side Service and Inspection facility. The location is currently occupied by Americold and Crocker and Winsor Seafoods and existing functions include temperature-controlled food storage and distribution.

### **Alternative 4 – Widett Circle** (Private Businesses)

Alternative 4, Widett Circle, is located primarily at 1 and 2 Foodmart Road in Boston within an industrial-zoned area commonly referred to as Widett Circle, as illustrated on Figure 15. This site is located on the MBTA Dorchester Branch, approximately 1.1 track-miles from South Station. This approximately 18.6-acre site would require property acquisition from The New Boston Food Market Development Corporation. The site would also require property easements from public right-of-way and from adjacent parcels also owned by the New Boston Food Market Development Corporation. The property owned by the New Boston Food Market Development Corporation is made up of approximately 30 units leased to multiple businesses in the food processing, food storage and food logistics industry.

### **Alternative 4A – Foodmart Road** (Private Businesses)

Alternative 4A, Foodmart Road, is located primarily at 1 Foodmart Road in Boston as shown on Figure 16. This site is located on the MBTA Dorchester Branch, approximately 1.1 track-miles from South Station. This industrial-zoned site is situated within Amtrak's wet/dry loop tracks to the east of Foodmart Road. This site is owned by various entities and would require property acquisition from the New Boston Food Market Development Corporation and Art Mortgage Borrower Propco 2006-2 LP and is approximately 17.8-acres in size. This site would also require several easements for use of Amtrak and state property. The property owned by the New Boston Food Market Development Corporation is made up of approximately 20 units leased to multiple businesses in the food processing, food storage and food logistics industry.

### **Alternative 5 – Boston Transportation Department Tow Lot** (City Property)

Alternative 5, Boston Transportation Department (BTD) Tow Lot, is located along Frontage Road in Boston as depicted on Figure 17. This site is located on the MBTA Dorchester Branch, approximately 0.9 track-miles from South Station. The site is primarily owned by the City of Boston for the storage of impounded vehicles from within Boston and is approximately 10.9-acres in size. This industrial-zoned site would also require partial acquisition of adjacent land operated by the Boston Department of Public Works (DPW). Use of this site would also require the use of a substantial portion of the adjacent Boston DPW property which would impact the existing fueling facility, salt pile, single story garages and the ramp to access the west side of the parking garage. This site would also require an easement from Amtrak.

[12] Where noted, some layover alternatives could require easements or partial acquisition of adjacent property.

### **Alternative 6 – Cabot Yard Red Line** (Existing Transit Facility)

Alternative 6, Cabot Yard Red Line, is located primarily at 163 Dorchester Avenue and 71 Foundry Street in Boston as shown on Figure 18. This site is located to the east of the MBTA Old Colony Main Line between the Fort Point Channel and the South Boston Bypass Road, approximately 1.2 track-miles from South Station. The majority of this approximately 18.1-acre site is owned by the MBTA. An easement would also be required within public right-of-way. The site is industrial-zoned to the south of West Fourth Street and is zoned as Restricted Manufacturing with an Interim Planning overlay to the north of West Fourth Street. This location currently houses MBTA's Cabot Yard Red Line facility and the primary existing functions include storage and maintenance of the MBTA's Red Line subway cars.

### **Alternative 7 – Cabot Yard Bus Facility** (Existing Bus Facility)

Alternative 7, Cabot Yard Bus Facility, is located at 163 Dorchester Avenue in Boston as shown on Figure 19. This site is located on the MBTA Old Colony Main Line, approximately 1.73 track-miles from South Station. This site is owned by the MBTA and is approximately 11.9-acres in size. This industrial-zoned site is located to the east of the MBTA Cabot Yard Red Line facility. The location currently houses MBTA's Cabot Yard bus facility and primary existing functions include storage and maintenance of approximately 20 percent of MBTA's active bus fleet.[13]

### **Alternative 8 – Boston Department of Public Works (DPW)** (City Property)

Alternative 8, Boston DPW, is located along Frontage Road in Boston, as shown on Figure 20. This site is located on the MBTA Dorchester Branch, approximately 0.8 track-miles from South Station. The majority of this site is owned by the City of Boston and is approximately 13.2-acres in size. This site would also require use of property owned MassDOT's Highway Department. This industrial-zoned site is located south of West Fourth Street between the MBTA Dorchester Branch and Frontage Road. The location houses Boston's DPW and the northern part of the BTD tow lot. Primary existing functions for this site include parking, DPW offices, DPW vehicle storage and maintenance garages, sand and salt storage, municipal police offices, and storage of impounded vehicles from within Boston.

### **Alternative 9 – Amtrak Southampton Street Service & Inspection** (Existing Rail Facility)

Alternative 9, Amtrak's Southampton Street Service and Inspection Facility, is primarily located at 400 Southampton Street in Boston. This site is located on the MBTA Old Colony Main Line, approximately 1.3 track-miles from South Station. The site is owned by Amtrak and is approximately 7.1-acres in size. As depicted on Figure 21, this industrial-zoned site is located near the intersection of Frontage Road and Southampton Street between the MBTA Dorchester Branch and Old Colony Main Line. This location currently houses Amtrak's Service and Inspection facility, maintenance facility, support functions, layover yard, and an employee parking lot. Primary existing functions for this site include layover and maintenance of Amtrak trains. By agreement with Amtrak, the MBTA currently uses a portion of the yard for midday layover of its commuter rail trains, with Amtrak using the yard mostly during overnight hours.

[13] Massachusetts Bay Transportation Authority. *Ridership and Service Statistics*. Thirteenth Edition. *2010.*

### **Alternative 10 – Amtrak Southampton Street Service & Inspection - West** (Existing Rail Facility)

Alternative 10, Amtrak Southampton Street Service and Inspection Facility - West, is primarily located at 400 Southampton Street in Boston as shown on Figure 22. This site is located on the MBTA Old Colony Main Line approximately 1.8 track-miles from South Station. This site is owned by Amtrak and is approximately 6.8-acres in size. This industrial-zoned site is located near the intersection of Frontage Road and Southampton Street between the MBTA Dorchester Branch and Old Colony Main Line. This location currently houses support buildings for Amtrak's Service and Inspection facility and layover yard and an employee parking lot. Primary existing functions for this site include parking and support for Amtrak operations including offices and crew quarters.

### **Alternative 10A – Front Yard** (Existing Rail Facility)

Alternative 10A, Front Yard, is depicted on Figure 23 and is located on Frontage Road in Boston. This site is located on the MBTA Dorchester Branch approximately 1.3 track-miles from South Station. This site is owned by Amtrak and is approximately 2.5-acres in size. This industrial-zoned site is located to the east of Access Road that leads to Widett Circle and north of the MBTA Dorchester Branch. This location currently houses Amtrak's Front Yard which consists of five existing tracks, each approximately 575-feet in length. Two tracks are currently used by Amtrak for storage of on-track, non-revenue equipment and maintenance-of-way materials, and the remaining three tracks are used by agreement for layover of MBTA commuter rail trains.

### **Alternative 11 – Dorchester Avenue** (Private Businesses)

Alternative 11, Dorchester Avenue, is primarily located along Dorchester Avenue in Boston as depicted on Figure 24. This site is located on the MBTA Old Colony Main Line approximately 2.0 track-miles from South Station. The site consists of 26 parcels owned by multiple commercial businesses and vacant land and is approximately 29.5-acres in size. This industrial-zoned site is located to the west of Dorchester Avenue between South Boston Bypass Road and Southampton Street. The majority of the businesses are related to the construction industry including contractors, equipment, and materials but other uses include warehouses, an auto shop, and gyms.

### **Alternative 12 – Von Hillern Street** (Private Businesses)

Alternative 12, Von Hillern Street, is located along Von Hillern Street in the Dorchester section of Boston as depicted on Figure 25. This site is located on the MBTA Old Colony Main Line and is approximately 2.0 track-miles from South Station. This site consists of multiple parcels and is owned by multiple commercial businesses and is approximately 6.2-acres in size. This manufacturing-zoned site is located on Von Hillern Street, between Interstate Route 93 (I-93) and the MBTA Red Line and just north of Columbia Road. The commercial businesses at this location include a promotional products company, an architectural restoration business, a tile and marble company, and an electrical products company.

### **Alternative 13 – Boston Globe** (Private Businesses)

Alternative 13, Boston Globe, is located at 25 to 135 Morrissey Boulevard in the Dorchester section of Boston as shown on Figure 26. This site is located on the MBTA Old Colony Main Line and is approximately 2.6 track-miles from South Station. The site is owned by Globe Newspaper Company and WHDH TV, among others and is approximately 27.6-acres in size. This commercial and industrial-zoned site is located at the intersection of Morrissey Boulevard and Columbia Road. The location currently houses Boston Globe newspaper company, CW56 TV broadcasting station, a Shaw's supermarket, and various office buildings.

### **Alternative 14 – Freeport Way** (Mixed-Use - City Property and Private Businesses)

Alternative 14, Freeport Way, is located in the area of Freeport Way, Freeport Street, Hoyt Street and Dewar Street in the Dorchester section of Boston as shown on Figure 27. This site is located on the MBTA Old Colony Main Line approximately 3.3 track-miles from South Station. The site is owned by various entities and is approximately 16.2-acres in size. This industrial-zoned site is located near the intersection of Freeport Way and Freeport Street. This site is utilized by the City of Boston and commercial entities for City operations, Boston Edison operations and school bus storage.

### **Alternative 15 – Freeport Street** (Mixed-Use – State/City Property and Private Businesses)

Alternative 15, Freeport Street, is located in the area of Freeport Street in Dorchester as shown on Figure 28. This site is located on the MBTA Old Colony Main Line approximately 3.4 track-miles from South Station. The site is owned by various entities including the MBTA, Massachusetts DPW, the Local 103 International Brotherhood of Electrical Workers (IBEW), IBEW Building Corporation, and Robert N TS Sheinkopf and is approximately 12.9-acres in size. This commercially-zoned site is located at the intersection of Freeport Street and Beach Street. The site is occupied by the MBTA Quality Control Facility, Massachusetts Water Resources Authority (MWRA) Fox Point Combined Sewer Overflow Treatment Facility, Local 103 IBEW and Joint Apprenticeship and Training Committee for the electrical industry.

### **Alternative 16 – Victory Road** (Private Businesses)

Alternative 16, Victory Road, is located at Victory Road and William T Morrissey Boulevard in Dorchester as shown on Figure 29. This site is located on the MBTA Old Colony Main Line approximately 4.1 track-miles from South Station. The site is primarily owned by various commercial entities including Bay Cove Human Services, GPB Real Estate Holdings LLC, and Lambert Ferdinand G Trusts and is approximately 9.3-acres in size. This commercially-zoned site is occupied by various service industry entities such as non-profit health care and real estate firms.

### **Alternative 17 – NSTAR** (Private Businesses)

Alternative 17, NSTAR, is primarily located at 1165 Massachusetts Avenue in Dorchester as shown on Figure 30. This site is located on the MBTA Dorchester Branch approximately 2.1 track-miles from South Station. The majority of this approximately 29.1-acre site is owned by the Boston Edison Company. This industrial-zoned site is located at the intersection of Massachusetts Avenue and Allstate Road. The location currently houses NSTAR corporate operations.

### **Alternative 18 – Forest Hills** (Mixed-Use – State Property and Private Businesses)

Alternative 18, Forest Hills, is located primarily at 3521 and 3593 Washington Street in Jamaica Plain, as shown on Figure 31. This site is located on the NEC approximately 4.8 track-miles from South Station. The site is owned by several entities and occupied partially by the MBTA and is approximately 11.1-acres in size. This industrial-zoned site is located at the intersection of McBride Street and Washington Street. The location currently houses several commercial sites as well as MBTA properties. Primary existing functions for this site include warehousing, small industry and MBTA operations.

### **Alternative 19 – Lanesville Terrace** (Mixed-Use – Residential and Private Businesses)

Alternative 19, Lanesville Terrace, is located along Lanesville Terrace, Washington Street, Arboretum Road, and Lochdale Road in Roslindale, as shown on Figure 32. This site is located on the MBTA Needham Line approximately 5.5 track-miles from South Station. The approximately 10.7-acre site is owned by several individual residential property owners and multiple industrial and commercial service businesses. This site is situated within two zoning subdistricts; local industrial and neighborhood shopping.

### **Alternative 20 – Readville - Yard 2** (Existing Rail Facility)

Alternative 20, Readville - Yard 2, is located primarily at 50 Wolcott Court in Readville, as shown on Figure 33. This site is located on the MBTA Dorchester Branch approximately 8.8 track-miles from South Station. The site, owned by the MBTA, is approximately 17.4-acres in size. This industrial-zoned site is located at the intersection of Wolcott Court and Hyde Park Avenue and is occupied by the MBTA Readville layover facility. Primary existing functions for this site include maintenance and repair operations and layover capacity of up to 12 MBTA commuter rail consists of varying lengths.

### **Alternative 20A – Readville-Yard 5** (Vacant/Former Rail Facility)

Alternative 20A, Readville-Yard 5, is located west of Sprague Street and north of Industrial Drive in the Readville section of Boston, as shown on Figure 34. This site is located on the NEC approximately 9.9 track-miles from South Station. The site, currently owned by the MBTA, has historically served as railroad layover yard by multiple entities and is approximately 16.0-acres in size. Environmental remediation of this industrial-zoned site was completed in 2011. The MBTA has plans at Readville - Yard 5 for use as a solar panel farm in the Dedham portion of the property (outside of this site), and to sell the land in the Boston portion of the site for private redevelopment.

### **Alternative 20B – Readville-Yard 1** (Existing Rail Facility)

Alternative 20B, Readville-Yard 1, is located primarily at 10 Milton Street in the Readville section of Boston, as shown on Figure 35. This site is located on the MBTA Dorchester Branch approximately 9.3 track-miles from South Station. The majority of the approximately 17.2-acre site is owned by the MBTA. This industrial-zoned site is located just south of Readville Station, between the NEC and Prescott Street, and is currently used as a freight rail yard by CSXT. This facility is a double ended yard that connects the NEC with the MBTA Dorchester Branch.

### **Alternative 21 – Arborway Bus Facility** (State Property)

Alternative 21, MBTA Arborway Bus Facility, is located at 3600 Washington Street in Jamaica Plain, as shown on Figure 36. This site is located adjacent to the NEC approximately 5.7 track-miles from South Station. Rail access would be via a tunnel from Forest Hills Station. The site is owned by the MBTA and is approximately 8.3-acres in size. This industrial-zoned site is located on Arborway Street between Washington Street and Stonley Road and currently houses the MBTA Arborway bus facility. Primary existing functions for this site include storage of MBTA buses.

### **Alternative 22 – Arborway MBTA Design and Construction Building** (State Property)

Alternative 22, MBTA Arborway Design and Construction Building, is located at Arborway Street in Jamaica Plain, as shown on Figure 37. This site is located on the NEC approximately 5.8 track-miles from South Station with rail access via Forest Hills Station. This site consists of two parcels owned by the MBTA and the City of Boston and is approximately 18.8-acres in size. This industrial-zoned site is located on Arborway Street between Washington Street and Forest Hills Street. The location currently houses MBTA offices and City of Boston DPW yard and garage and primary existing functions include business and engineering administration as well as material and equipment storage.

### **Alternative 23 – D Street** (Private Businesses)

Alternative 23, D Street, is located along B Street, D Street and E Street in Boston, as shown on Figure 38. This site is approximately 2.4 track-miles from South Station, located off of the Boston Terminal Running Track, which connects to the MBTA Old Colony Main Line. The approximately 10.9-acre site is owned by multiple commercial entities. This industrial-zoned site is located at the intersection of Cypher Street and D Street. Existing functions for this site include a private investment firm and a commercial printing service.

### **Alternative 24 – A Street** (Mixed-Use – State Property and Private Businesses)

Alternative 24, A Street, is located along the South Boston Bypass Road in Boston as shown on Figure 39. This site is approximately 2.3 track-miles from South Station, located on the Boston Terminal Running Track, which connects to the MBTA Old Colony Main Line. The approximately 14.7-acre site consists of multiple private businesses and state-owned property. Owners include Nicholas J Contos, the Massachusetts Convention Center Authority, the USPS, the Commonwealth of Massachusetts and MassDOT. This restricted manufacturing-zoned (with planned development area designation) site is located at the intersection of A Street and West First Street. Primary existing functions for this site are USPS operations, the South Boston Bypass Road, and parking.

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# 5. Screening of Layover Sites

A two-tier screening assessment was conducted to refine the initial list of 28 layover sites to a set of potential locations for further analysis and conceptual design. The first tier involved a "fatal flaw" screening based on three key criteria including site suitability, railroad operations, and site access. The second tier involved a more detailed comparison of candidate sites based on factors such as consistency with zoning, distance from South Station, site topography, environmental impacts, layover yard and main line operations, and capital improvement requirements. For the second tier screening, a conceptual plan was prepared for each potential site. This analysis avoided residential acquisitions and relocations to the greatest extent possible. This analysis also minimized acquisitions and relocations of private businesses when other options may be available. At the end of this screening process, a number of sites were identified for further evaluation as part of the environmental review process.

## 5.1. Tier 1 Screening

Once the initial candidate sites were identified, the next step involved conducting a Tier 1 screening. The goal of the Tier 1 screening was to evaluate the ability of the alternatives to meet the overarching transportation and program objectives established for the project and eliminate sites that were deemed to have fatal flaws. As a result of this initial screening, sites were either eliminated from further consideration or advanced to the Tier 2 screening for more detailed analysis and evaluation against an expanded set of evaluation criteria.

### 5.1.1. Tier 1 Screening Criteria

The Tier 1 screening criteria includes:

- **Site suitability** – Sites that would require extensive or complicated acquisitions and relocations, and sites already programmed for other uses were eliminated from further consideration. Acquisition of residential property was avoided to the greatest extent possible. Acquisition of private businesses was minimized when other options may be available.
- **Railroad operations** – Capacity along main lines, running tracks and yards were considered when evaluating the practicability of each site under the railroad operations criterion. Main line, running track and yard track capacity should be able to accommodate existing and proposed revenue operations as well as non-revenue moves to and from a layover area.
- **Site access** – Each site must be able to reasonably access a railroad main line to provide the most efficient operation of train movements between South Station and the layover. Infrastructure constraints, including issues with topography and physical barriers were evaluated under this criterion.

Any site determined to not satisfy all three criteria were eliminated from further consideration.

### 5.1.2. Tier 1 Screening Analysis

All 28 alternative sites were evaluated for their ability to meet the Tier 1 evaluation criteria: site suitability, railroad operations, and site access. Those sites that did not meet these criteria were eliminated from further review and were not advanced into the Tier 2 screening process. The following section describes each of the alternatives eliminated, and the reasoning as compared to the Tier 1 evaluation criteria.

### Site Suitability

The following eight alternatives were determined infeasible due to site suitability constraints:

- Alternative 4 – Widett Circle
- Alternative 4A – Foodmart Road
- Alternative 6 – Cabot Yard Red Line
- Alternative 7 – Cabot Yard Bus Facility
- Alternative 8 – Boston Department of Public Works
- Alternative 9 – Amtrak Southampton Street Service & Inspection
- Alternative 20A – Readville – Yard 5
- Alternative 24 – A Street

The site suitability issues associated with each eliminated site are:

- **Alternative 4 – Widett Circle / Alternative 4A – Foodmart Road:** These two sites contain numerous private businesses leasing units from the property owner, New Boston Food Market Development Corporation. Collectively, these businesses, known as The New Boston Food Market, are situated on two parcels of land within a mile of the central business district of Boston and designated for use as outlined under Chapter 121A of the Massachusetts General Laws. Due to complications associated with relocating multiple businesses with special requirements in common (temperature controlled storage, food processing), Chapter 121A development complexities, and the need to be in close proximity to the metropolitan market, these alternatives are not feasible at this time.
- **Alternative 6 – Cabot Yard Red Line / Alternative 7 – Cabot Yard Bus Facility:** Alternatives 6 and 7 require relocation of major transportation support infrastructure. The relocation of Cabot Yard Red Line facility would require a site of similar or better characteristics than the existing site. The site would also need to be situated on or adjacent to the MBTA Red Line corridor and meet the requirements of the MBTA Red Line rapid transit operations. The relocation of Cabot Yard Bus Facility would also be a major undertaking, requiring a centralized location for easy access to a majority of the MBTA bus routes in downtown Boston as well as other program requirements of MBTA Bus operations. Due to the difficulties in relocating either of these existing facilities, it was determined that both sites are not feasible.
- **Alternative 8 – Boston Department of Public Works (DPW):** The Boston DPW facility has recently undergone some rehabilitation work. In addition, this alternative would require reconstruction of an overhead bridge located at West Fourth Street and impact access to the adjacent Tow Lot property. The City plans to continue to use this facility for DPW functions and it would be extremely difficult to relocate in its entirety. Therefore, the DPW site is unavailable for a layover site.
- **Alternative 9 – Amtrak Southampton Street Service & Inspection:** The layover facility at Southampton Street Yard is generally limited to its existing footprint. This yard is bound by the MBTA Red Line Cabot Yard Lead Tracks, MBTA Old Colony Main Line, MBTA Dorchester Branch, Southampton Street and I-93, which restricts the ability to expand capacity at Southampton Street Yard. This site is not available because it would be infeasible and cost prohibitive to impact I-93 and other major existing transportation infrastructure.

- **Alternative 20A – Readville - Yard 5:** The MBTA has recently conducted extensive environmental remediation at Yard 5 by treating and removing contaminated soil from the site. The MBTA has committed the Dedham portion of the site for redevelopment as a solar farm and the Boston portion of the site for sale with the intention of private development. For these reasons, it was determined that the site for a layover site is not appropriate.
- **Alternative 24 – A Street:** Alternative 24 covers an area partially occupied by the South Boston Bypass Road and the West Service Road, both important roadway connections between the Seaport District and I-93. Substantial portions of both roadways would require relocation in order to maximize the use of A Street as a railroad layover site. Relocation of these roadways would sever direct connections to I-90, Congress Street, Haul Road and Seaport Boulevard. Relocation of the South Boston Bypass Road would also potentially cause major impacts to adjacent roadways due to heavy truck traffic. Additionally, the City has identified this area for future redevelopment activities. For these reasons, it was determined that the site for an A Street layover site is not appropriate.

## Railroad Operations

Operational considerations include capacity along main lines, running tracks and yards, which is critical in determining the operational feasibility of a site. Main line, running track and yard track capacity should be able to accommodate existing and proposed revenue operations as well as non-revenue moves to and from the layover. The 28 alternative sites were reviewed for their ability to meet this criterion. From this review, the following seven alternatives were removed from further consideration due to railroad operating constraints and impacts to the system:

- Alternative 10A – Amtrak Front Yard
- Alternative 12 – Von Hillern Street
- Alternative 13 – Boston Globe
- Alternative 14 – Freeport Way
- Alternative 15 – Freeport Street
- Alternative 16 – Victory Road
- Alternative 20B – Readville - Yard 1

The railroad operations issues associated with each eliminated site are described in this section.

- **Alternative 10A – Amtrak Front Yard** – The expansion of tracks at Front Yard was considered, in order to accommodate eight-car consists. However, due to constraints with existing infrastructure (I-93, Bypass Road, Dorchester Branch, etc.), it was determined that expansion of Front Yard to accommodate eight-car consists is cost prohibitive and not practicable for the purpose of this project. Due to the track length constraints in this yard, it will not accommodate the eight-car consists required for future railroad operations and therefore Alternative 10A was eliminated from further consideration.

- **Alternative 12 – Von Hillern Street / Alternative 13 – Boston Globe / Alternative 14 – Freeport Way / Alternative 15 – Freeport Street / Alternative 16 – Victory Road**: With the operational constraints documented in previous studies (as discussed below) and the current volume of trains in both directions on the Old Colony Main Line, this analysis concluded there is no capacity for expansion of rail traffic on this segment of railroad and thus, the alternatives located along the MBTA Old Colony Main Line were eliminated from further consideration.

  There are four major rail corridors that access South Station, which consist of the MBTA Old Colony Main Line, the MBTA Dorchester Branch, the NEC, and the MBTA Worcester Line. The MBTA Dorchester Branch, NEC, and the MBTA Worcester Line have at least two main line tracks. The MBTA Old Colony Main Line, however, is constrained to a single main line track south of Southampton Street. Currently, there are 72 MBTA revenue trains that serve the MBTA Middleborough/Lakeville, Plymouth/Kingston and Greenbush lines operating over this single track main line and are split equally between inbound and outbound trains.

  The capacity of the MBTA Old Colony Main Line has been analyzed as part of several studies in the past. The New Bedford/Fall River Commuter Rail Extension project documented the MBTA Old Colony capacity constraints as part of the DEIR submitted in July, 1999.[14] As part of this study, additional train service was modeled to determine if it was operationally feasible to add more train operations to the MBTA Old Colony Main Line. The analysis showed that with a limited number of additional trains the potential for signal delays would result in gridlock on the entire MBTA Old Colony Main Line. This study concluded that the MBTA Old Colony Railroad's single track segments north of Braintree had insufficient capacity to support the Old Colony services and accommodate any additional trains north of Braintree.

  The April 2004 *MBTA Commuter Rail Infrastructure Needs Assessment Study* (CRINA Report)[15] documented the commuter rail infrastructure and rolling stock investment requirements necessary to support the anticipated ridership and service levels for the MBTA through 2025. The report concluded that in order to increase services on the MBTA Old Colony Lines, substantial infrastructure investments would be necessary including double tracking the main line and expanding outlying layover capacity.

- **Alternative 20B – Readville - Yard 1:** Readville – Yard 1 is currently used as a freight yard by CSXT. Two CSXT local trains originate out of Yard 1 five days a week to serve customers and perform switching duties between Readville and Attleboro. The crews for these two trains report to the CSXT office near the south end of the yard to start and end their shift. The yard tracks are used to stage freight cars, block cars and build trains. Use of this yard for a layover site would severely impact CSXT's ability to conduct freight operations in the area. For this reason, Alternative 20B was determined to be infeasible as a layover site.

[14] Massachusetts Bay Transportation Authority. *Draft Environmental Impact Report*, New Bedford/Fall River Commuter Rail Extension Project. July, 1999.
[15] Massachusetts Bay Transportation Authority. *Final Technical Report*, MBTA Commuter Rail Infrastructure Needs Assessment Study. April, 2004.

### Site Access

Each site must be able to reasonably access a railroad main line to provide the most efficient operation of train movements to and from layover. Infrastructure constraints, including issues with topography and physical barriers, were evaluated under this criterion. The following three alternatives were determined infeasible due to site access constraints:

- Alternative 21 – Arborway Bus Facility
- Alternative 22 – Arborway MBTA Design and Construction Building
- Alternative 23 – D Street

The site access issues associated with each eliminated site are described in this section.

- **Alternative 21 – Arborway Bus Facility / Alternative 22 – Arborway MBTA Design and Construction Building:** Two sites, the MBTA Arborway Bus Facility and MBTA Arborway Design and Construction Building, are northeast of the Forest Hills Station located along the NEC in the Jamaica Plain section of Boston. Rail access to either one of these sites would require a substantial change in elevation, tunneling through an existing station and under three major roadways, substantial construction impacts and potentially very high capital cost. Given the impacts to existing infrastructure and utilities imposed by the construction of these alternatives, these sites were eliminated from further consideration.
- **Alternative 23 – D Street:** Much of the area surrounding the D Street parcel has recently been acquired for the development of an apartment complex and two hotels on two separate sites. In addition, accessing the D Street area would require either a shared-use right-of-way (street running) or a permanent easement or acquisition to re-establish the railroad tracks that once existed parallel to Cypher Street, immediately to the southwest of the site. At least two new grade crossings would be required under the easement/taking option. The street running option would require full-depth reconstruction of Cypher Street and relocation of utilities in the roadway. This option would yield a scenario with public vehicular traffic that would compromise the operationally reliability of accessing the site.

### 5.1.3. Tier 1 Screening Summary

Of the initial list of 28 candidate sites, 18 were eliminated from further consideration based on the Tier 1 screening evaluation. All alternatives were compared to the three Tier 1 evaluation criteria: site suitability, railroad operations, and site access. Those that met the criteria were advanced to the Tier 2 screening. Those that did not meet the Tier 1 criteria were removed from further consideration. The following 18 sites did not meet the basic needs of the project and were dismissed:

- Alternative 4 – Widett Circle (dismissed for site suitability issues)
- Alternative 4A – Foodmart Road (dismissed for site suitability issues)
- Alternative 6 – Cabot Yard Red Line (dismissed for site suitability issues)
- Alternative 7 – Cabot Yard Bus Facility (dismissed for site suitability issues)
- Alternative 8 – Boston Department of Public Works (dismissed for site suitability issues)
- Alternative 9 – Amtrak Southampton Street Service & Inspection (dismissed for site suitability issues)
- Alternative 10A – Amtrak Front Yard (dismissed due to railroad operating constraints)

- Alternative 12 – Von Hillern Street (dismissed due to railroad operating constraints)
- Alternative 13 – Boston Globe (dismissed due to railroad operating constraints)
- Alternative 14 – Freeport Way (dismissed due to railroad operating constraints)
- Alternative 15 – Freeport Street (dismissed due to railroad operating constraints)
- Alternative 16 – Victory Road (dismissed due to railroad operating constraints)
- Alternative 20A – Readville – Yard 5 (dismissed for site suitability issues)
- Alternative 20B – Readville – Yard 1 (dismissed for railroad operations issues)
- Alternative 21 – Arborway Bus Facility (dismissed due to limited site access)
- Alternative 22 – Arborway MBTA Design and Construction Building (dismissed due to limited site access)
- Alternative 23 – D Street (dismissed due to limited site access)
- Alternative 24 – A Street (dismissed for site suitability issues)

Of the 28 sites considered, the following ten locations were carried forward into the Tier 2 evaluation and screening process. These alternatives meet the overall requirements for a layover site and will be evaluated further in the Tier 2 screening.

- Alternative 1 – Commuter Rail Maintenance Facility (CRMF)
- Alternative 2 – Beacon Park Yard
- Alternative 3 – Cold Storage
- Alternative 5 – Boston Transportation Department Tow Lot
- Alternative 10 – Amtrak Southampton Street Service & Inspection – West
- Alternative 11 – Dorchester Avenue
- Alternative 17 – NSTAR
- Alternative 18 – Forest Hills
- Alternative 19 – Lanesville Terrace
- Alternative 20 – Readville - Yard 2

## 5.3. Tier 2 Screening

The Tier 2 screening process included development of more detailed screening criteria by which to evaluate the remaining alternatives. Refinement of each of the remaining 10 alternatives included development of conceptual designs, further evaluation of railroad operating characteristics, and major capital requirements necessary to construct each alternative. The purpose of the Tier 2 screening is to compare each of the sites relative to each other using the evaluation criteria to select potential layover sites. Unlike the Tier 1 analysis, the Tier 2 screening analysis was more detailed and not simply a "pass or fail" evaluation. From this Tier 2 screening process, the sites that best met the objectives and goals of the project were selected to move into the environmental review process.

### 5.3.1. Tier 2 Screening Criteria

The Tier 2 screening evaluation criteria, developed in coordination with interested parties, are described in this section. They are organized into the following six categories and described in the following sections:

A. Consistency with adopted plans and zoning;

B. ability to meet location requirements;

C. railroad operations;

D. environmental impacts;

E. site suitability; and

F. capital improvements.

#### A. Consistency with Adopted Plans and Zoning

This criterion was used to assess each site's consistency with locally adopted plans and zoning. Included is a review of the land use of the site, the zoning classification of each site (given the nature of layover operations, industrial zoning is preferred), and any known planned land use for the site.

#### B. Ability to Meet Location Requirements

This criterion was used to determine the ability of each site to meet location requirements for rail and roadway access. Main line rail access was assessed in terms of whether the site would have direct (no reverse moves) and exclusive access (not sharing with other railroad functions). Direct access less than 200 feet away is preferred and increasing distance to access track is considered less desirable. Any streets that would have to be crossed by the access tracks were identified because they are deemed to be operationally disruptive or could have potential traffic and safety impacts. Another measure was whether the site was already accessible by rail.

While rail access is vital to the layover site, roadway access is also important. Roadway access to a layover site is necessary for staff access, the delivery of supplies and other materials and the removal of trash. The roadway access route should avoid, to the greatest extent possible, routes through residential and other sensitive areas.

Lastly, site characteristics such as topography and potential train storage capacity were considered. A level site is preferred although a site that requires some grading can be acceptable in certain situations. Storage capacity was measured by the number of eight-car trains consists with a single locomotive that could be accommodated at each location.

## C. Railroad Operations

Railroad operations relating to the layover areas were based on a set of four subcriteria including: yard operations, main line impacts, distance to South Station, and travel time to South Station.

Yard operations for layover purposes were based on whether the site would have a single lead track, could accommodate parallel lead tracks, could accommodate a loop track or was accessible from both ends. The purpose of this measure is to place a higher value on sites that would be least likely to disrupt operations in the event that one yard lead is fouled by a failed switch, locomotive or another unexpected event. Having flexibility in accessing and using the site is a desirable quality in a layover site.

The capacity of the main line was considered relative to the layover train capacity of a given site. A smaller site with fewer layover trains would potentially have less of an impact on the main line leading to the layover site, but other conditions could exist that make it undesirable as well. Sites with larger capacity for train storage would demand more train volume on the main line accessing the site, however, a large capacity site may be situated on a main line with inadequate capacity to fully utilize that layover.

Distance to South Station was another measure used to assess the operational characteristics of each site. Generally, the further from South Station a layover site lies, the more time it would take to move trains to and from South Station (deadhead miles), which has cost implications. A location within two miles was considered ideal, one within four miles was considered desirable and sites beyond four miles were considered less desirable and were evaluated on a case-by-case basis in terms of operations.

The final measure of this criterion was the travel time to each layover site, with lower travel times preferred. While the distance from South Station has implications for travel time, there are additional factors that can affect travel time including the speeds on the intervening track. Factors that affect speeds include track geometry and the amount of switching required to access a site. Some sites would require a train to travel past the site and reverse direction to access and exit the site, a situation that is much less desirable than sites that do not require such maneuvers.

## D. Environmental Impacts

For the environmental impact criterion, the preliminary screening measures included whether the site was adjacent to residential areas or other sensitive receptors (schools, nursing homes, hospitals) and whether there were known environmental issues associated with the site. This analysis also assessed whether each site was located in designated environmental justice areas, using data provided by the Commonwealth's Office of Geographic Systems (MassGIS) Environmental Justice Viewer database. While any noise, vibration or visual impacts from sites adjacent to residential areas can be buffered through the use of mitigation (such as berms, walls or intervening space), it is preferable to avoid such proximity. Known environmental issues include any condition that would complicate or even prevent use of the site.

## E. Site Suitability

Site suitability was judged in terms of the nature and number of relocations each site would require. There are a number of situations that could make a site difficult to acquire. While a privately held site could be condemned if necessary, condemnation is not the preferred method of site acquisition but the last available option. Sites already owned by public entities can only be acquired through agreement with the public entity. Similarly, railroad sites, such as those owned by Amtrak or the MBTA, have to be acquired through agreement. If there is substantial reason to believe such an agreement could not be achieved a site would be considered less desirable. The amount of acquisitions required could make the location cost prohibitive as a layover yard.

The final factor in this criterion was the number and type of uses that would have to be relocated to make the site available. Any current usage would have to be relocated under Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs[16] requirements whether the user is a lessor or owner of the site. The fewer the number of current users, the easier a replacement site would be to find. In some cases the current user or users would need a suitable replacement site that could be difficult to find. This could include the need to locate a site with the appropriate zoning, access, or proximity to complementary uses.

### F. Capital Improvements

The major capital improvement (infrastructure) requirements were summarized for each alternative to determine whether certain components would influence the cost of constructing a particular layover site. Items with major cost factors were considered in this section such as major earthwork, major known utility relocations, major track and/or signal improvements, new or modified interlockings, and infrastructure modifications or relocations. Building demolition and site clean-up were also considered under this criterion.

## 5.3.2. Tier 2 Screening Analysis

The purpose of the Tier 2 screening analysis is to evaluate the concepts developed for each of the 10 remaining sites and measure how each site performs when compared to each other. Figures 40 through 49, provided in Attachment B, illustrate the conceptual layout of each site and the capacity of the site as a layover yard. The following sections describe each site.

### Alternative 1 – Commuter Rail Maintenance Facility (CRMF)

Alternative 1, Commuter Rail Maintenance Facility (CRMF), is located primarily in Somerville with smaller portions in Cambridge, and is situated on the south side of the MBTA Fitchburg Line. The conceptual layover design would optimize the use of existing CRMF tracks and/or provide additional tracks parallel to the Fitchburg Line which would allow for storage of up to six consists. This concept is shown in Figure 40 provided in Attachment B. The following section provides details on the Tier 2 screening for Alternative 1.

#### A. Consistency with Adopted Plans and Zoning

The site lies within both Somerville and Cambridge and is subject to different zoning regulations in each city. The Somerville portion of this site is zoned IB, Industrial B, which allows railroad layover functions. The Cambridge portion is zoned as NP PUD-6, North Point District with a Planned Unit Development overlay, which is designated for residential, office and business development. The North Point District zoning code does not allow a railroad layover use. This site is currently being used for parking, material storage and non-revenue rail equipment storage by MBTA.

#### B. Ability to Meet Location Requirements

This site has existing rail access from the MBTA Fitchburg Line via the Grand Junction Running Track (GJRT) and the MBTA Framingham/Worcester Line. Rail access to this site from South Station is neither direct nor exclusive as trains traveling to the layover would be competing with freight operations, north side and south side Amtrak and MBTA revenue trains and other non-revenue moves required by Amtrak and the MBTA. To access the site, trains would be required to traverse six highway-rail at-grade crossings

[16] United States Department of Transportation. 42 United States Code Chapter 61, *Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs*. January 1, 2012. Available at: http://uscode.house.gov/download/pls/42C61.txt

on the GJRT in Cambridge, including several major roads, plus three pedestrian at-grade crossings. Road access would be from Washington Street via Inner Belt Road and Third Avenue. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to this site is approximately 6.9 track-miles. Close to three miles of the route is on the GJRT which is restricted to speeds of 10 mph or less. Additionally, the GJRT is single track, with six at-grade highway crossings and three at-grade pedestrian crossings in Cambridge. This relatively slow running speed, in addition to a reverse move that is required at Beacon Park Yard, contributes to a travel time in excess of 20 minutes each way which is greater than any other site in the Tier 2 screening. The yard operations would include double ended access with ladders; however, there are some railroad operational concerns with this site. There are some main line impacts since non-revenue trains going to CRMF from the south side would be required to travel on main line tracks along the MBTA Framingham/Worcester Line between Boston and Beacon Park Yard and along the MBTA Fitchburg Line between the GJRT and CRMF. Additionally, current infrastructure along the GJRT is not conducive to adding up to 12 trains per day (six in each direction) to this segment of track without substantial improvement to signals and/or track.

### D. Environmental

This site is located in an existing industrial area on the south side of the MBTA Fitchburg Line. A layover site in this location is not anticipated to have an adverse effect on natural resources. Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and polycyclic chlorinated biphenyls (PCBs) among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. According to the Commonwealth's Office of Geographic Information (MassGIS) Environmental Justice viewer,[17] this site is partially located within a designated environmental justice area for minority populations. The proposed NorthPoint mixed-use development site is located directly adjacent to this site to the south. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. Overall, the placement of the layover area in an existing industrial district would not result in any substantial changes to the local visual environment. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This alternative would not require acquisition as the MBTA already owns this land. However, using this part of the property as a layover site would displace its current use of parking, material storage and equipment storage. Expansion of this site is not feasible so these functions would need to be relocated on site.

### F. Capital Improvements

This site would require construction of a new interlocking or extensive modifications to an existing interlocking on the MBTA Fitchburg Line. Other construction activities would include relocating sidings that are currently used to store non-revenue rail-bound equipment as well as relocating employee parking, lay-down areas for maintenance-of-way materials and storage of communication and signal equipment.

[17] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

Currently, the GJRT is non-signaled territory where there are no scheduled revenue passenger trains. However, occasional non-revenue passenger train moves are made over this section of track to transfer railroad equipment between the north side and south side of the rail system in Boston. CSXT has operating rights on the GJRT and uses the line regularly to serve their freight customers. In order to make railroad operations more efficient, substantial track and signal improvements may be warranted along the GJRT between the MBTA Fitchburg Line and the MBTA Framingham/Worcester Line to support increased rail traffic traveling to and from the CRMF.

**Recommendation – Dismiss Alternative 1 from further consideration for the following reasons:**

- **Distance and travel time to layover are substantial;**
- **Reverse move required at Beacon Park to access the new yard;**
- **GJRT is limited to "restricted speed," not exceeding 10mph and has eight existing at-grade crossings including major roads in Cambridge; and**
- **Major infrastructure improvements would be required including extensive modifications to the MBTA Fitchburg Route interlocking and substantial track and signal improvements on the GJRT.**

## Alternative 2 – Beacon Park Yard

Alternative 2, Beacon Park Yard, is located in the Allston section of Boston on the north side of the MBTA Framingham/Worcester Line. The conceptual layover design would provide tracks parallel to the MBTA Framingham/Worcester Line to store up to 30 consists. This concept is shown in Figure 41 provided in Attachment B. The following section provides details on the Tier 2 screening for Alternative 2.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the Boston Redevelopment Authority (BRA) as the Allston Landing South Economic Development Area (EDA). According to Article 51 Section 22 of the Boston Zoning Code "The purpose of this Allston Landing South EDA is to promote industrial and manufacturing uses and to preserve and maintain the existing industrial uses which are vital to the City, State, and regional economy."[18] This site has served for many years as a major freight rail yard and intermodal terminal in Boston for CSXT. Today, the freight and intermodal functions are in transition to be relocated to central Massachusetts in 2013. The entire property is currently owned by Harvard University Beacon Yards LLC, and is encumbered by CSXT's operating rights. As previously described, this site is the location of both an MBTA easement area and an option running in favor of MassDOT, both of which are also encumbered by CSXT's rights. With both the easement and the option area, this site would provide space for 30 consists. A rail freight terminal and accessory railroad storage yard are approved uses without restrictions within the Allston Landing South EDA. A planned commuter rail station west of the yard will have minimal or negligible impacts on the use of this site as a layover yard.

### B. Ability to Meet Location Requirements

The nature of this site as an existing rail facility would simplify the construction of the layover yard. The site has existing rail access via the MBTA Framingham/Worcester Line. Rail access to this site from South Station is direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from an existing driveway at the intersection of Cambridge Street and Lincoln Street. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 3.8 track-miles. Despite the distance to this site and two MBTA stations (Back Bay Station and Yawkey Station) along the route, good main line access and main line track speeds allow trains to access this site in approximately 10 to 15 minutes. While this site has a large potential capacity and double-ended access for operations, there are some railroad operational concerns. By using this site to layover up to 30 consists, the MBTA Framingham/Worcester Line would experience some impacts. Capacity on the main line tracks would be in high demand between the non-revenue moves to and from the yard and revenue trains on the MBTA Framingham/Worcester Line. With the increased volume of trains, schedule changes may be necessary and congestion may become an issue on the main line during peak hours.

[18] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 51 – Allston-Brighton Neighborhood District, Section 22*. November 13, 1991. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article51.pdf

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. Existing residential areas are present to the south of the existing MBTA Framingham/Worcester Line. There is no known planned residential use at or directly adjacent to this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to nearby residential land uses. A layover site in this location is not anticipated to have an adverse effect on natural resources. According to the MassGIS Environmental Justice viewer,[19] this site is located within a designated environmental justice area for minority and low-income populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

The location currently serves as a freight rail yard, bulk transfer facility, intermodal facility, engine facility and provides several other railroad functions. It is assumed for the purposes of this analysis that the MBTA will use its easement area to build the layover infrastructure as soon as the site is available. Up to 12 consists can be accommodated on the MBTA easement. The storage of 12 consists on this easement is considered a "future existing condition," whereby construction has not yet started but it is anticipated that the MBTA easement portion of this site will be used before the start of this project, and will be coordinated with other MassDOT-related needs in the area.

However, in order to accommodate additional consists at this site to meet the existing and future layover need, use of more land beyond the MBTA easement area is necessary. An additional 132-foot wide area, immediately to the north of the MBTA easement area, is the subject of MassDOT's option agreement. MassDOT expects that the area subject to the option would fulfill the land requirement necessary to build tracks for 30 consists. Because the MassDOT option area is reserved for unrelated purposes, additional rights beyond what MassDOT now has would be necessary to accomplish this outcome. Additional rights may also be necessary within the MBTA easement area depending upon the ultimate use and functions decided upon. MassDOT and the MBTA have had preliminary discussions with the property owner and intend to begin negotiations on this issue in the near future.

### F. Capital Improvements

Construction at this site would require demolition of several small railroad support buildings and four larger buildings. Other demolition would include reclaiming salvageable rail and ties and disposal of a large quantity of bituminous and cement concrete as well as scrap rail and ties. Two interlockings on the MBTA Framingham/Worcester Line would require modifications for controlled yard access.

As part of the current agreement between Harvard University and the MBTA, the MBTA would be required to construct a ventilation system, fire protection, heat dissipation, and lighting if Harvard chooses to exercise the air rights/overbuild clause of the agreement. This clause also requires that railroad infrastructure be constructed so as to not preclude the use of surface area for such items as building foundations, building access/egress, vehicle access and utilities.

[19] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

**Recommendation – Advance Alternative 2 for further evaluation and concept refinement.**

- **Existing use of this site as a rail yard would simplify construction;**
- **The MBTA easement agreement already exists;**
- **No property acquisitions are required; and**
- **Topography and current land use are favorable for this site for layover purposes.**

## Alternative 3 – Cold Storage

Alternative 3, Cold Storage, is located in Boston on the west side of the MBTA Dorchester Branch. The conceptual layover design would provide tracks along the east property line of the site to store up to six consists. This concept is shown in Figure 42 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 3.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial, which allows railroad layover functions. The site currently houses a temperature controlled food storage and distribution facility that is use by Americold and Crocker and Winsor Seafoods. The building has an active CSXT-served rail siding with space for six freight cars.

### B. Ability to Meet Location Requirements

This site has existing rail access from the MBTA Dorchester Branch; however, the tracks would need to be reconfigured and expanded to maximize the potential of this parcel as a layover site. Rail access to this site from South Station is direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Frontage Road via Widett Circle and Foodmart Road. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 0.9 track-miles and travel time would be an estimated 5 to 10 minutes. Rail access to the site is direct, but limited to a single yard lead off the MBTA Dorchester Branch, which is not optimal. There are no major main line impacts, given that the site is located a short distance from South Station.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no existing or known planned residential use at or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[20] this site is not located within a designated environmental justice area. Overall, the placement of the layover site in an existing industrial district would not result in any substantial changes to the local visual environment. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This alternative would require an approximately 6.6 acre site, which would involve the full acquisition of 100 Widett Circle, a 4.7 acre parcel that contains the Americold cold storage facility. A portion of 0 West Fourth Street (owned by Amtrak) and a portion of 0 Widett Circle (owned by New Boston Food Market Development Corporation) would also be required. Use of this site would also require the displacement and relocation of Americold plus any businesses that operate at this facility, with specific needs of temperature controlled food storage and freight rail access.

[20] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

### F. Capital Improvements

Construction of this site would include demolition of a large concrete and steel building along with one track and a substantial area of bituminous concrete pavement. Roadway access to the MBTA's Service and Inspection building would need to be maintained or relocated.

**Recommendation – Dismiss Alternative 3 from further consideration for the following reasons:**

- **Acquisition and relocation would be extremely challenging due to relocating private businesses with special requirements (temperature controlled storage, food processing, and need for close proximity to the metropolitan market) and Chapter 121A development complexities.**
- **MassDOT is sensitive to the displacement of private businesses when publicly owned options could be further utilized for layover purposes. It is determined that this site is not feasible.**

## Alternative 5 – BTD Tow Lot

Alternative 5, BTD Tow Lot, is located in Boston, to the west of the MBTA Dorchester Branch. The conceptual layover design would provide tracks to the west of Amtrak's wet/dry loop tracks to store up to 10 consists. This concept is shown in Figure 43 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 5.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial, which allows railroad layover functions. The site is currently used by the BTD as a centrally-located automobile tow lot.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site; however, this site is located just to the west of the MBTA Dorchester Branch and Amtrak's wet/dry loop tracks, so it is possible to make a rail connection. Rail access to this site from South Station would be direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Frontage Road. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 0.9 track-miles and travel time would be an estimated 5 to 10 minutes. Rail access to this site would be via parallel lead tracks off the MBTA Dorchester Branch. This site has no major main line impacts, given that the site is located a short distance from South Station.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present land use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no existing or known planned residential use for or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[21] this site is not located within a designated environmental justice area. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This approximately 10.9-acre site would require acquisition of three full parcels and a portion of an additional parcel owned by the City of Boston. An easement would be required from Amtrak for the use of a portion of property located at 0 West Fourth Street. Use of this site would require displacement and relocation of the BTD tow lot, a city-owned facility that requires a centrally located site. Use of this site would also require a substantial portion of the adjacent Boston DPW property that would impact the existing fueling facility, salt pile, single-story garages and the ramp to access the west side of the parking garage. Due to site constraints, relocation of the parking garage access ramp and site circulation considerations would be required. Additionally, with the displacement of the fueling facility, salt pile, and single story garages, it may not be feasible to relocate these components on site due to the land area required for these functions. Due to the nature of City operations at the DPW, it could be a challenge to

[21] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

separate these functions from the main DPW facility, relocate them to another property within City limits, and still maintain an efficient operation.

### F. Capital Improvements

Construction at this site would include demolition of the BTD tow lot and maintenance building, as well as a fueling station and bulk storage bins located on the Boston DPW site. Extensive modifications or relocation of the ramp accessing the Boston DPW parking garage would be required to accommodate the lead tracks for the layover yard. Relocation of a large single story DPW garage, DPW fueling facility and DPW salt pile would also be required. A new or modified interlocking would be required for controlled rail access to the yard.

**Recommendation – Advance Alternative 5 for further evaluation and concept refinement.**

- **Close and direct rail access to and from South Station and good road access via Frontage Road;**
- **Publicly-owned facility;**
- **Relative to other sites, minimal site work is required to establish this site for layover purposes; and**
- **Topography of this site is favorable for layover purposes.**

## Alternative 10 – Amtrak Southampton Street Service & Inspection - West

Alternative 10, Amtrak Southampton Street Service & Inspection -West, is located in Boston to the west of the MBTA Old Colony Main Line. The conceptual layover design would provide tracks along the northeast side of Frontage Road to store up to nine consists. This concept is shown in Figure 44 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 10.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial, which allows railroad layover functions. The site is currently used by Amtrak and the MBTA for multiple functions related to passenger rail, including offices and crew quarters to support existing layover uses. Amtrak plans to continue to use this site to support its passenger rail equipment so its use as a layover site would not be consistent with the planned use.

### B. Ability to Meet Location Requirements

There is no existing rail access to the site but it is in close proximity to the existing Southampton Street Yard and MBTA Old Colony Main Line. Rail access to this site from South Station would not be direct, as trains would be required to stop and reverse direction to access the site. Additionally, rail access would not be exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Southampton Street via Frontage Road. The topography is favorable at this site for layover purposes.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 1.8 track-miles; however, rail access is a concern for this site. To access the layover yard, trains would have to enter Amtrak's Southampton Street Yard from the MBTA Old Colony Main Line or Dorchester Branch, travel through the yard and then make a reverse move to enter the Southampton Street Service and Inspection - West site through a single yard lead. These moves would impact Amtrak's Southampton Street Yard operations. Despite the close proximity to South Station, the reverse move to enter the layover site increases the transit time to an estimated 10 to 15 minutes, affecting the efficiency of the site. There are no major main line impacts, given that the reverse move is off the main line and that the site is located a short distance from South Station.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no existing or planned residential use at or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[22] this site is located within a designated environmental justice area for low-income and minority populations. It is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

[22] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

**E. Site Suitability**

This approximately 6.8-acre site would require use of approximately 6.4-acres of property at 400 Southampton Street, currently owned by Amtrak. Use of this parcel would require displacement and relocation of multiple facilities that are required to support Amtrak operations. This site also requires four easements for 0.4 acres of property owned by the MBTA or the Commonwealth of Massachusetts.

**F. Capital Improvements**

Construction at this site would require relocation of several of Amtrak's vital railroad support functions, including the demolition of the current structure in which they are housed. Real estate constraints in this area and the need to keep the railroad support functions in close proximity to the existing Southampton Street Yard may necessitate structured parking and office space while reserving surface area for deliveries and bulk storage.

**Recommendation – Dismiss Alternative 10 from further consideration for the following reasons:**

- **Operational impacts to Amtrak's Southampton Street Yard due to access through the existing yard;**
- **Displacement of Amtrak layover support buildings; and**
- **Reverse move required to access the new yard.**

## Alternative 11 – Dorchester Avenue

Alternative 11, Dorchester Avenue, is located in Boston on the east side of the MBTA Old Colony Main Line. The conceptual layover design would provide 26 storage tracks parallel to Dorchester Avenue and the Old Colony Main Line to store up to 38 consists. This concept is shown in Figure 45 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 11.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial. The majority of this site consists of commercial businesses including those related to construction, auto repair, warehouse storage, and personal fitness with some adjacent residential uses. While the current zoning code allows railroad layover functions, existing and planned uses are not consistent with railroad use although a portion of the site has an abandoned rail spur.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site; however, the MBTA Old Colony Main Line runs along the west edge of the site so it would be relatively easy to provide rail connection. Rail access to this site from South Station would not be direct, as trains would be required to stop and reverse direction on a future tail track that this alternative would propose off of the MBTA Old Colony Main Line, in order to gain access the site. Additionally, rail access would not be exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this site. Road access would be from Southampton Street. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to this site is approximately 2.0 track-miles. Rail access to the site would be through a single yard lead off the MBTA Old Colony Main Line, which is not optimal, and a reverse move using a new tail track off the MBTA Old Colony Line would be required to enter or exit the yard. Despite the close proximity to South Station, the reverse move increases the transit time to an estimated 10 to 15 minutes, impacting the efficiency of the site. This site has some main line impacts, with a potential for up to 38 trains laying over at this location, capacity on the main line tracks would be in high demand between the non-revenue moves to and from the yard and revenue trains on the MBTA Old Colony Main Line.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. While there are some residences in close proximity to this site, there is no known planned residential use for or directly adjacent to this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[23] this site is located within a designated environmental justice area for low-income populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this

[23] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

**E. Site Suitability**

This approximately 29.5-acre site would require property acquisition from approximately 24 parcels and three easements on public property. Use of this site would require displacement and relocation of more than 30 commercial businesses. Acquisition of parcels necessary to utilize this site for layover purposes would be a major undertaking.

**F. Capital Improvements**

Construction of this site would require substantial building demolition and site cleanup of all required parcels. Modifications to a nearby interlocking on the MBTA Old Colony Main Line would include the addition of a tail track and reconfiguration of an existing industrial track lead. The tail track would be used to divert trains entering/exiting the layover from the main line so as to not disrupt revenue rail traffic. The Southampton Street overhead bridge would also need to be rebuilt to accommodate the yard lead and tail track.

**Recommendation – Dismiss Alternative 11 from further consideration for the following reasons:**

- **A reverse move is required to access the site and access is via a single yard lead;**
- **Due to the large storage capacity and the location of this site, the volume of trains traveling to and from this site would negatively impact operations on the MBTA Old Colony Main Line;**
- **Close proximity to residential area;**
- **Many commercial businesses would be displaced to accommodate layover at this site; and**
- **Property acquisition is expected to be difficult given the number of parcels required.**

## Alternative 17 – NSTAR

Alternative 17, NSTAR, is located in the Dorchester section of Boston to the east of the MBTA Dorchester Branch. The conceptual layover design would provide storage tracks for up to 18 consists, along the north side of Norfolk Avenue and East Cottage Street. This concept is shown in Figure 46 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 17.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI, a Local Industrial Subdistrict. Currently, the main use of this site is office, warehouse, shops, and material storage for NSTAR. According to Article 65, Section 20 of the Boston Zoning Code "The purpose of the Local Industrial Subdistricts is to encourage the expansion of light manufacturing and research and development uses…within the Dorchester Neighborhood District."[24] Accordingly, current and planned uses are not consistent with railroad use.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site but it is adjacent to the MBTA Dorchester Branch main line tracks, although the site is situated approximately 17 feet lower in elevation than the main line. Rail access to this site from South Station would be direct but not exclusive as trains traveling to layover areas would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover site. Road access would be from Massachusetts Avenue. The topography of the site is flat; however, the elevation drop between the main line tracks and the site is not favorable.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 2.1 track-miles and travel time would be an estimated 5 to 10 minutes. Rail access would be through a single yard lead off of one of the MBTA Dorchester Branch main line tracks, which is not optimal, and an approximately 17-foot drop in grade to the proposed storage track elevation from the main line would be required. The large storage capacity of this site means a heavy volume of additional trains would be traveling on the MBTA Dorchester Branch, creating some impacts to existing rail traffic. To help avoid additional main line impacts from reverse running on Dorchester Branch Track 2 for a long distance, a new crossover on the MBTA Dorchester Branch would be needed.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no known existing or planned residential land use at or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[25] this site is located within a designated environmental justice area for minority, low-income and English isolation populations. It is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

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[24] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 65 – Dorchester Neighborhood District, Section 20*. July 17, 2002. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article65.PDF

[25] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

**E. Site Suitability**

This approximately 29.1-acre site would require property acquisition of four privately owned parcels and partial acquisition of MBTA and publicly owned property. The NSTAR facility, comprised of a 23.9-acre parcel owned by Boston Edison Co. and a 3.5 acre parcel owned by SG National LLC, makes up the majority of the site. This site would require displacement and relocation of the NSTAR facility and two smaller entities including Norfolk Auto Tech and Norfolk Tap. NSTAR would likely have specific requirements for relocation.

**F. Capital Improvements**

Construction of this site would include demolition of large office and warehouse-type buildings along with several smaller building structures. A substantial amount of earthwork would be required in order to meet the design guidelines for a layover site. Construction of a new interlocking on the MBTA Dorchester Branch would also be required to access the site via rail.

**Recommendation – Dismiss Alternative 17 from further consideration for the following reasons:**

- **Residential land use exists directly adjacent to this site;**
- **The MBTA Dorchester Branch main line is situated at a much higher elevation than the site; and**
- **NSTAR would be a substantial acquisition and relocation of this facility would be extremely challenging.**

## Alternative 18 – Forest Hills

Alternative 18, Forest Hills, is located in the Jamaica Plain section of Boston on the east side of the NEC. The conceptual layover design would provide storage tracks parallel to the NEC to store up to five consists. This concept is shown in Figure 47 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 18.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI, a Local Industrial Subdistrict. Current uses of this site include automobile sales warehouses and the Neighborhood Assistance Corporation of America offices. According to Article 55 Section 18 of the Boston Zoning Code "The purpose of the Local Industrial Subdistricts is to encourage the preservation of the existing manufacturing and industrial base in a manner that is sensitive to and preserves the quality of life of the surrounding neighborhoods."[26] Accordingly, current and planned uses are not consistent with railroad use. Additionally, there are several residences adjacent to this site that may be negatively impacted by a layover site.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site but it is adjacent to the NEC main line tracks. The site is substantially higher in elevation than the main line. Rail access to this site from South Station would be direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Washington Street via McBride Street. The topography of the site is flat; however, the elevation difference between the site and the main line tracks is not favorable. Use of this site may necessitate earthwork to lower the elevation of the entire site closer to the main line elevation.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 4.8 track-miles and travel time would be an estimated 10 to 15 minutes. However, travel times could be higher due to the already congested nature of the NEC and the priority given to revenue trains. Rail access would be through a single yard lead off of the NEC Track 2, which is not optimal because of directional high-speed, main line revenue rail traffic. Also, a substantial incline from the main line to the proposed storage track elevation would be required if the site elevation is not lowered. This site also has major main line impacts, as it would require non-revenue trains to travel reverse direction for approximately four miles between Cove interlocking and the layover yard, passing through Back Bay and Ruggles Stations on the primarily inbound NEC Track 2. This would have profound impacts to the NEC and would be detrimental to both MBTA and Amtrak operations along the entire line.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial land use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. Residential land use exists directly adjacent to this site. No additional residential use is planned for this site or directly adjacent to this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. Noise and/or vibration mitigation measures

[26] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 55 – Jamaica Plan Neighborhood District, Section 18.* September 7, 1993. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article55.PDF

may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[27] this site is located within a designated environmental justice area for minority populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This approximately 11.1-acre site would require property acquisition of four full parcels and one partial parcel. The four full parcels (approximately 6.2 acres of the site) are privately owned and would require acquisition. The remaining 4.9 acres of the site would be the partial use of an MBTA owned parcel use for a power substation. Use of this site would require displacement and relocation of multiple businesses including Flanagan & Seaton Motor Car Co. and the Neighborhood Assistance Corporation of America. Acquisition of parcels necessary to utilize this site for a layover site would be a major undertaking.

### F. Capital Improvements

Construction of this site would include demolition of several buildings and a substantial length of concrete retaining wall. A substantial amount of earthwork would be required to accommodate the layover tracks near the same elevation as the adjacent main line tracks. A new interlocking would be required on Track 2 of the NEC.

**Recommendation – Dismiss Alternative 18 from further consideration for the following reasons:**

- **Residential land use exists directly adjacent to this site;**
- **The NEC main line is situated at a much lower elevation than the site; and**
- **The need for reverse running over an extended distance on the primarily inbound NEC Track 2 to enter the yard makes this layover alternative infeasible.**

[27] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

## Alternative 19 – Lanesville Terrace

Alternative 19, Lanesville Terrace, is located in the Roslindale section of Boston on the southeast side of the MBTA Needham Line. The conceptual layover design would provide storage tracks for up to 10 consists parallel to the MBTA Needham Line. This concept is shown in Figure 48 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 19.

The following section describes the results of this alternative in the Tier 2 evaluation.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI, a Local Industrial Subdistrict. This site, although located in Roslindale, for zoning purposes is considered part of the Jamaica Plain Neighborhood District. Some current uses of this site include a self-storage facility, a catering company, an ice cream wholesale and retail business, a vibration isolation equipment manufacturer, cemetery monument manufacturers, and a gas station with food mart, car wash, and oil change facilities. According to Article 55 Section 18 of the Boston Zoning Code "The purpose of the Local Industrial Subdistricts is to encourage the preservation of the existing manufacturing and industrial base in a manner that is sensitive to and preserves the quality of life of the surrounding neighborhoods."[28] Accordingly, current and planned uses are not consistent with railroad use, although the MBTA Orange Line has a small layover yard adjacent to this site. Additionally, there are several residences adjacent to this site that may be negatively impacted.

### B. Ability to Meet Location Requirements

There is no existing rail access to the site but it is adjacent to the MBTA Needham Line main lines tracks. The site is substantially higher in elevation than the main line. Rail access to this site from South Station would be direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Washington Street via Lanesville Terrace. The topography of the site is flat; however, the elevation difference between the site and the main line tracks is not favorable. Use of this site would likely require some widening the MBTA Needham Line tunnel under Washington Street as well as lowering the elevation of part of or the entire site closer to the main line elevation.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 5.5 track-miles and travel time would be an estimated 15 to 20 minutes. Rail access would be through a single yard lead off of the MBTA Needham Line, which is not optimal, and would require a below grade connection from MBTA Forest Hills Station. Additionally, a substantial incline from the main line to the proposed storage track elevation would be required if the site elevation is not dropped, requiring a longer lead track. This site also has main line impacts, given that it requires non-revenue trains to travel on the congested NEC between South Station and the MBTA Forest Hills Station, competing for capacity with revenue MBTA and Amtrak operations. Adding additional trains to the NEC would be detrimental to both MBTA and Amtrak operations along the line. Additionally, priority is typically given to revenue trains, thus layover trains could be sidelined and may experience longer than the estimated travel time range.

[28] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 55 – Jamaica Plan Neighborhood District, Section 18.* September 7, 1993. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article55.PDF

**D. Environmental**

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial land use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. Residential land use exists directly adjacent to this site, however, no additional residential use is planned for this site or directly adjacent to this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[29] this site is located within a designated environmental justice area for minority populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

**E. Site Suitability**

This approximately 10.7-acre site would require property acquisition of 23 privately owned parcels. This site would also require the use of approximately 1.8 acres of MBTA and publicly owned property. Use of this site would require displacement and relocation of many businesses including Roslindale Self Storage, Gourmet Caterers, Puritan Ice Cream, Kinetic Systems, Davis Monuments, Wellsmere Monumental Works, and Emporium Gas. Full acquisition of 23 parcels would be necessary which would be a major undertaking.

**F. Capital Improvements**

Construction at this site would require demolition of several buildings along with clearing of vegetation. Earthwork would be necessary to accommodate the layover tracks closer to the elevation of the adjacent main line tracks. A new interlocking would be required to gain rail access to the site via the Needham Line. Additionally, the MBTA Needham Line tunnel under Washington Street would need to be widened to accommodate the yard lead tracks.

**Recommendation – Dismiss Alternative 19 from further consideration for the following reasons:**

- **Residential land use exists directly adjacent to this site;**
- **Many existing businesses would be displaced by a layover site at this location;**
- **The MBTA Needham Line main line is situated at a much lower elevation than the site;**
- **The MBTA Needham Line tunnel under Washington Street would need to be widened; and,**
- **Adding trains to the NEC would be detrimental to MBTA and Amtrak operations.**

[29] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

## **Alternative 20 – Readville - Yard 2** (Existing Rail Facility)

Alternative 20, Readville - Yard 2, is located in the Readville section of Boston to the east of the MBTA Dorchester Branch. The conceptual layover design would provide eight additional storage tracks for total storage capacity of up to 18 consists adjacent to the MBTA Dorchester Branch. This concept is shown in Figure 49 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 20.

The following section describes the results of this alternative in the Tier 2 evaluation.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI-1, Local Industrial. An accessory railroad storage yard is an allowable use within the LI-1 Subdistrict. The site is currently used by the MBTA primarily as a railroad layover facility. Other uses of the site include the MBTA's rail equipment maintenance shop, welfare facilities for train crews, and railroad material storage. A review of Boston Zoning District Map 12 indicates that the site potentially abuts a Riverfront Protection Overlay District and a single-family residential subdistrict (1F-6000 Subdistrict, at Wolcott Court). The expansion of layover at Readville - Yard 2 would be consistent with the existing industrial use.

### B. Ability to Meet Location Requirements

This site is an existing MBTA layover facility and has existing rail access via the MBTA Dorchester Branch. Rail access to this site from South Station is direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with MBTA revenue trains and occasional freight traffic. There are no at-grade crossings along the route to this layover facility. Road access would be from an existing driveway at the intersection of Wolcott Court and Wolcott Street. The topography is favorable at this site for use as a layover area.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 8.8 miles and travel time would be an estimated 15 to 20 minutes, which is a significant distance from South Station. Rail access would be via an existing yard lead connection to the MBTA Dorchester Branch at Dana Interlocking. Additional non-revenue movements to and from Readville - Yard 2 on the MBTA Dorchester Branch could impact current revenue operations as well as future service increases.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present at this site. The expansion of layover functions in this location is not anticipated to have an adverse effect on natural resources. There is existing residential use directly adjacent to the southeast of this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[30] this site is located within a designated environmental justice area for minority populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from an increase in layover capacity at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

[30] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

### E. Site Suitability

This approximately 17.4-acre site would use existing MBTA property and no additional property acquisition or relocation would be necessary for the increased layover capacity at this location. Formerly used as a rail yard by predecessor railroads, the topography, shape and size of the site lend itself well for use a layover site. In order to expand this site to allow for construction of additional tracks, some railroad track materials will need to be relocated.

### F. Capital Improvements

Construction of the additional tracks at this site would require slope stabilization or a retaining wall along the bank of the Neponset River at the north end of the yard. No major demolition, clearing or earthwork would be required to build the additional eight tracks at this site.

**Recommendation – Advance Alternative 20 for further evaluation and concept refinement.**

- **While its distance from South Station could pose operational constraints and would increase operating costs, this site is an existing rail facility currently owned by the MBTA;**
- **Relative to other sites, minimal site work is required to increase layover capacity of this site;**
- **No additional property acquisition or relocation required; and**
- **Topography of this site is favorable for layover purposes.**

### 5.3.3. Tier 2 Screening Summary

Of the 10 locations recommended for further evaluation from the Tier 1 screening, seven locations were eliminated in the Tier 2 screening based on the Tier 2 screening evaluation criteria. All alternatives were compared to the six Tier 2 evaluation criteria: consistency with adopted plans and zoning, ability to meet location requirements, railroad operations, environmental impacts, site suitability and capital improvements. Those that best met the criteria will advance to the environmental review process. Those that did not perform well when compared to these criteria were removed from further consideration. Table 9 provides the results of the Tier 2 screening evaluation.

**Table 9 Results of the Tier 2 Screening Evaluation**

| Alternative Site | Tier 2 Screening Criteria | | | | | | Recommendation |
|---|---|---|---|---|---|---|---|
| | A. Consistency with Adopted Plans/Zoning | B. Ability to Meet Location Requirements | C. Railroad Operations | D. Environmental Impacts | E. Site Suitability | F. Capital Improvements Required | |
| 1. Commuter Rail Maintenance Facility | Unfavorable | Neutral | Unfavorable | Neutral | Neutral | Unfavorable | **Dismiss** |
| 2. Beacon Park Yard | Favorable | Favorable | Neutral | Favorable | Favorable | Favorable | **Advance** |
| 3. Cold Storage | Neutral | Favorable | Neutral | Favorable | Unfavorable | Unfavorable | **Dismiss** |
| 5. BTD Tow Lot | Neutral | Favorable | Favorable | Favorable | Unfavorable | Neutral | **Advance** |
| 10. Amtrak Southampton Street Service & Inspection – West | Neutral | Unfavorable | Neutral | Favorable | Unfavorable | Neutral | **Dismiss** |
| 11. Dorchester Avenue | Neutral | Neutral | Neutral | Favorable | Unfavorable | Unfavorable | **Dismiss** |
| 17. NSTAR | Unfavorable | Neutral | Neutral | Neutral | Unfavorable | Unfavorable | **Dismiss** |
| 18. Forest Hills | Unfavorable | Neutral | Unfavorable | Neutral | Neutral | Unfavorable | **Dismiss** |
| 19. Lanesville Terrace | Unfavorable | Neutral | Unfavorable | Neutral | Unfavorable | Unfavorable | **Dismiss** |
| 20. Readville - Yard 2 | Favorable | Neutral | Unfavorable | Favorable | Favorable | Favorable | **Advance** |

The following seven sites will not advance for further consideration:

- Alternative 1 – Commuter Rail Maintenance Facility
- Alternative 3 – Cold Storage; and
- Alternative 10 – Amtrak Southampton Street Service & Inspection – West
- Alternative 11 – Dorchester Avenue
- Alternative 17 – NSTAR
- Alternative 18 – Forest Hills
- Alternative 19 – Lanesville Terrace

The following three sites are recommended to advance for further evaluation and concept refinement during the environmental review process:

- Alternative 2 – Beacon Park Yard
- Alternative 5 – BTD Tow Lot
- Alternative 20 – Readville - Yard 2

## 5.4. Screening Summary

The two-tiered screening process used to assess candidate layover sites followed several steps, as documented in this chapter. The initial, or Tier 1 screening, evaluated the ability of each site to meet the overarching transportation and program objectives for the project using criteria such as ease of land acquisition, effect on operations, and ability to integrate the site into the existing rail and roadway networks. Of the 28 candidate sites, 10 locations were carried forward to the Tier 2 evaluation.

The Tier 2 screening process involved developing conceptual designs, developing preliminary operating plans, and identifying infrastructure requirements. Of the 10 candidate sites from the Tier 1 screening, three locations were identified as having the ability to best meet the needs of the South Station project and are recommended to move forward into the environmental review phase of the project:

- Alternative 2 – Beacon Park Yard
- Alternative 5 – BTD Tow Lot
- Alternative 20 – Readville - Yard 2

The concept plans prepared in the Tier 2 screening determined that no single remaining alternative has the physical space needed to fulfill the entire layover need in the year 2040. This analysis also determined that layover of too many trainsets approaching South Station from one location could cause conflicting railroad operations and create a bottleneck. Thus, the next phase of the layover assessment will include evaluating combinations of the three recommended sites to test how they integrate with the existing four layover sites serving South Station. This involves refining the concept plan for each site and developing rail operations plans to determine the alternative that will best meet the needs of this project.

# 6. Conclusions and Next Steps

The primary goal of this analysis was to identify potential locations for a new layover site or a combination of new sites to resolve inadequate existing and future layover capacity for South Station railroad operations. Of the initial 28 alternatives identified as having potential for layover to serve South Station, the following three sites are recommended for further evaluation in the environmental review phase of the project:

- **Alternative 2 – Beacon Park Yard** (Figures 13 and 41). The Beacon Park Yard site is located along Cambridge Street in the Allston section of Boston between the I-90 Massachusetts Turnpike Allston Toll Plaza and the MBTA Framingham/Worcester Line. This 22.4-acre site is approximately 3.8 track-miles from South Station.
- **Alternative 5 – BTD Tow Lot** (Figures 17 and 43). The BTD Tow Lot site is located along Frontage Road in Boston. The approximately 10.9-acre site is located on the MBTA Dorchester Branch, approximately 0.9 track-mile from South Station.
- **Alternative 20 – Readville - Yard 2** (Figures 33 and 49). The Readville - Yard 2 site is the location of the existing MBTA Readville layover facility located primarily at 50 Wolcott Court in Readville. The approximately 17.4-acre site is located on the MBTA Dorchester Branch, approximately 8.8 track-miles from South Station. While its distance from South Station is less desirable and would increase operating costs, this site is an existing MBTA-owned rail facility and would not require acquisition or relocation of residential property or private businesses.

These three potential layover site locations meet the project's goals and objectives when measured against operational needs, property requirements, potential environmental benefits and impacts, consistency with local planning, and capital improvements. The next phase of analysis, the environmental review process, will thoroughly examine different combinations of the three remaining alternatives that could meet the existing and future layover needs for the South Station expansion. This phase of review and analysis will include the development of:

- Refined conceptual plans;
- A phasing plan that addresses sequencing and timing of the three sites based on operational need;
- Conceptual operating plans;
- Capital, operations and maintenance cost estimates; and
- Identification of potential environmental impacts.

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# Attachment A Tier 1 Alternatives – Figures

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**Figure 12 Commuter Rail Maintenance Facility – Alternative 1**

Figure 12: **Commuter Rail Maintenance Facility**
Alternative 1

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 13 Beacon Park Yard – Alternative 2**

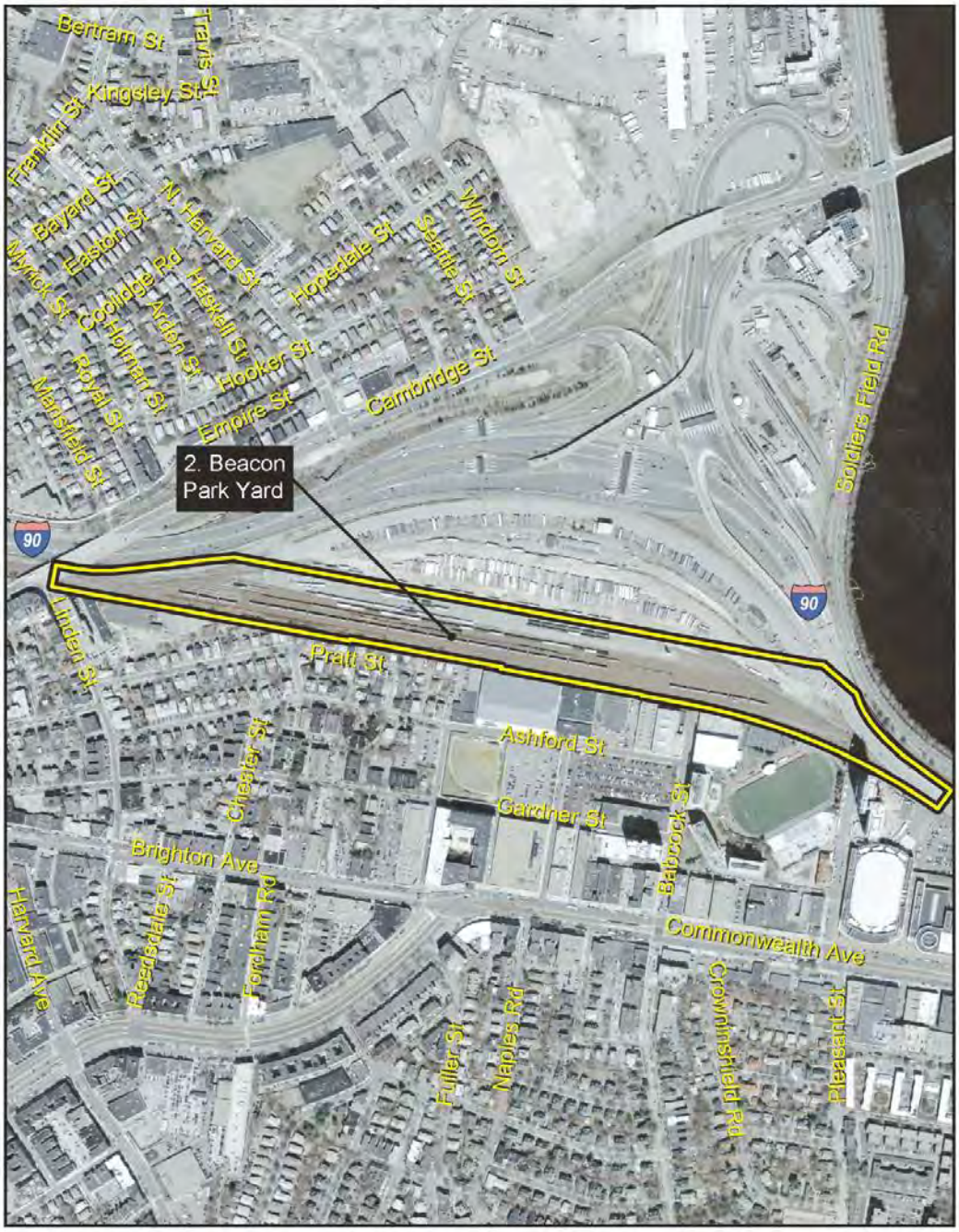


Figure 13: **Beacon Park Yard**
Alternative 2

0 150 300 600 Feet

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 14 Cold Storage – Alternative 3**

Figure 14: **Cold Storage**
Alternative 3

**Figure 15 Widett Circle – Alternative 4**

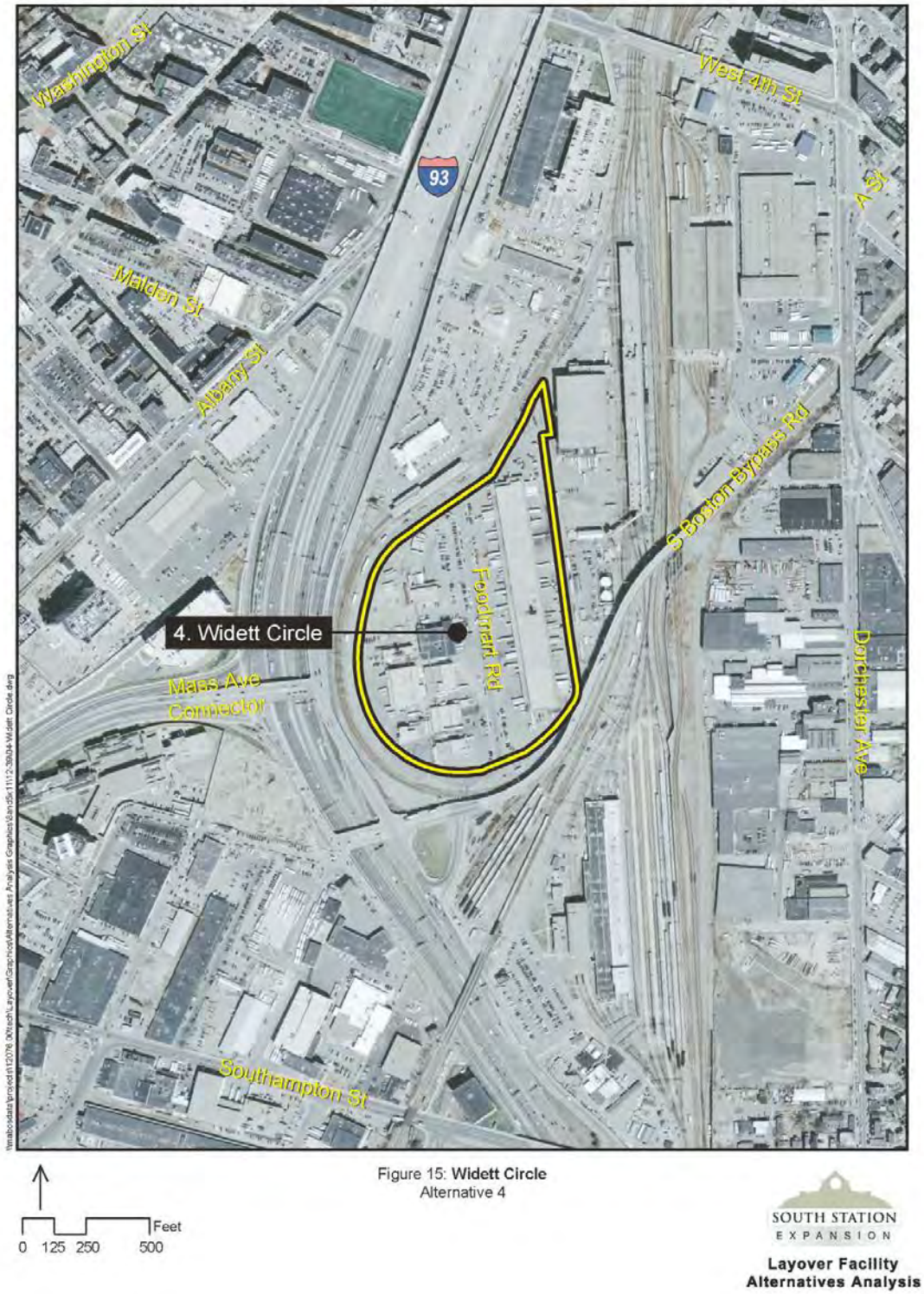

**Figure 16 Foodmart Road – Alternative 4A**

Figure 16: **Foodmart Road**
Alternative 4A

**Figure 17 Boston Transportation Department Tow Lot– Alternative 5**

Figure 17: **Boston Transportation Department Tow Lot**
Alternative 5

**Figure 18 Cabot Yard Red Line – Alternative 6**

**Figure 19 Cabot Yard Bus Facility – Alternative 7**

**Figure 20 Boston Department of Public Works – Alternative 8**

Figure 20: **Boston Department of Public Works**
Alternative 8

**Figure 21 Amtrak Southampton Street Service & Inspection – Alternative 9**

Figure 21: **Amtrak Southampton Street Service & Inspection**
Alternative 9

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 22 Amtrak Southampton Street Service & Inspection - West – Alternative 10**

Figure 22: **Amtrak Southampton Street Service & Inspection-West**
Alternative 10

**Figure 23 Amtrak Front Yard – Alternative 10A**

Figure 23: **Amtrak Front Yard**
Alternative 10A

**Figure 24 Dorchester Avenue – Alternative 11**

Figure 24: **Dorchester Avenue**
Alternative 11

**Figure 25 Von Hillern Street – Alternative 12**

Figure 25: **Von Hillern Street**
Alternative 12

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 26 Boston Globe – Alternative 13**

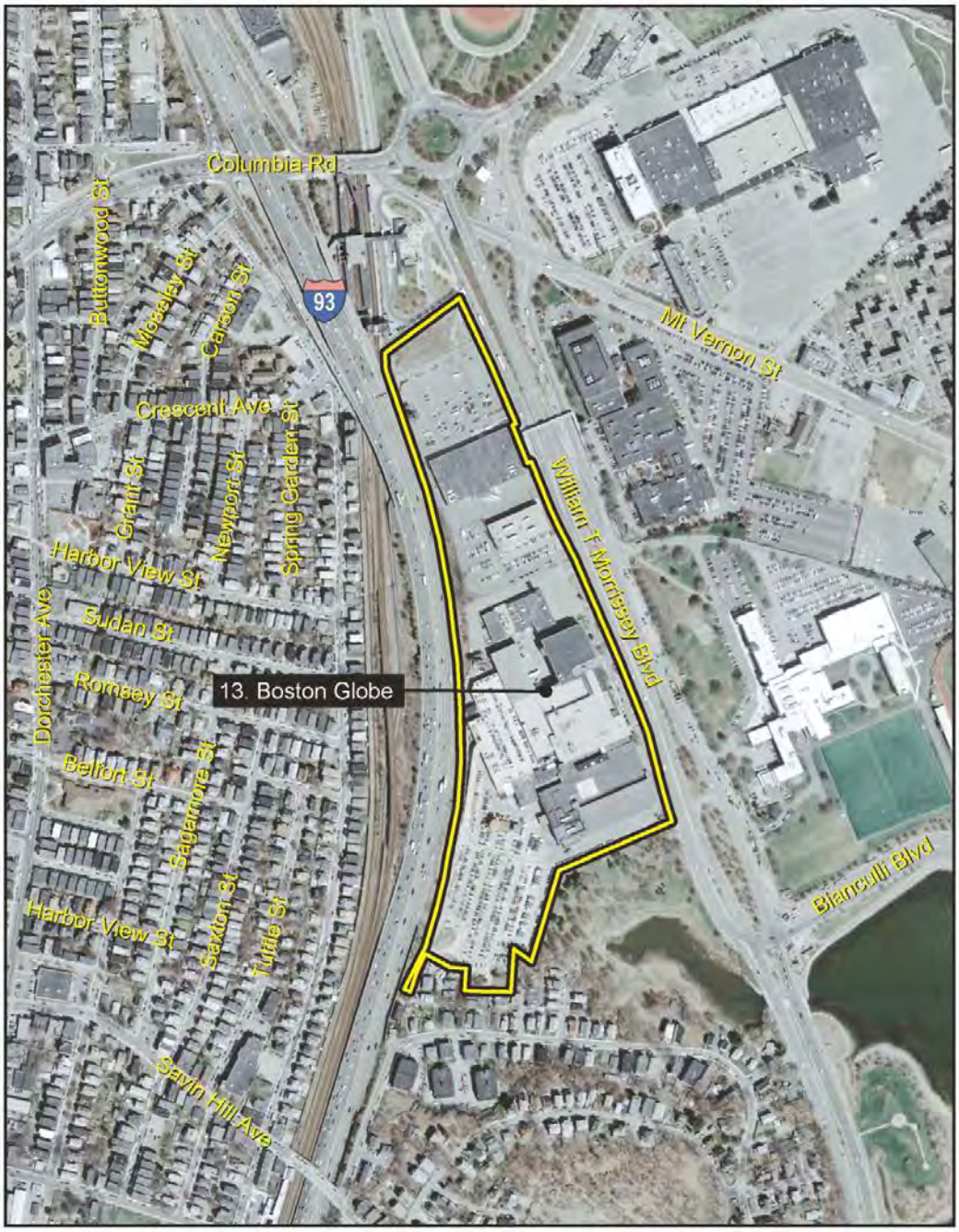


Figure 26: **Boston Globe**
Alternative 13

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 27 Freeport Way – Alternative 14**

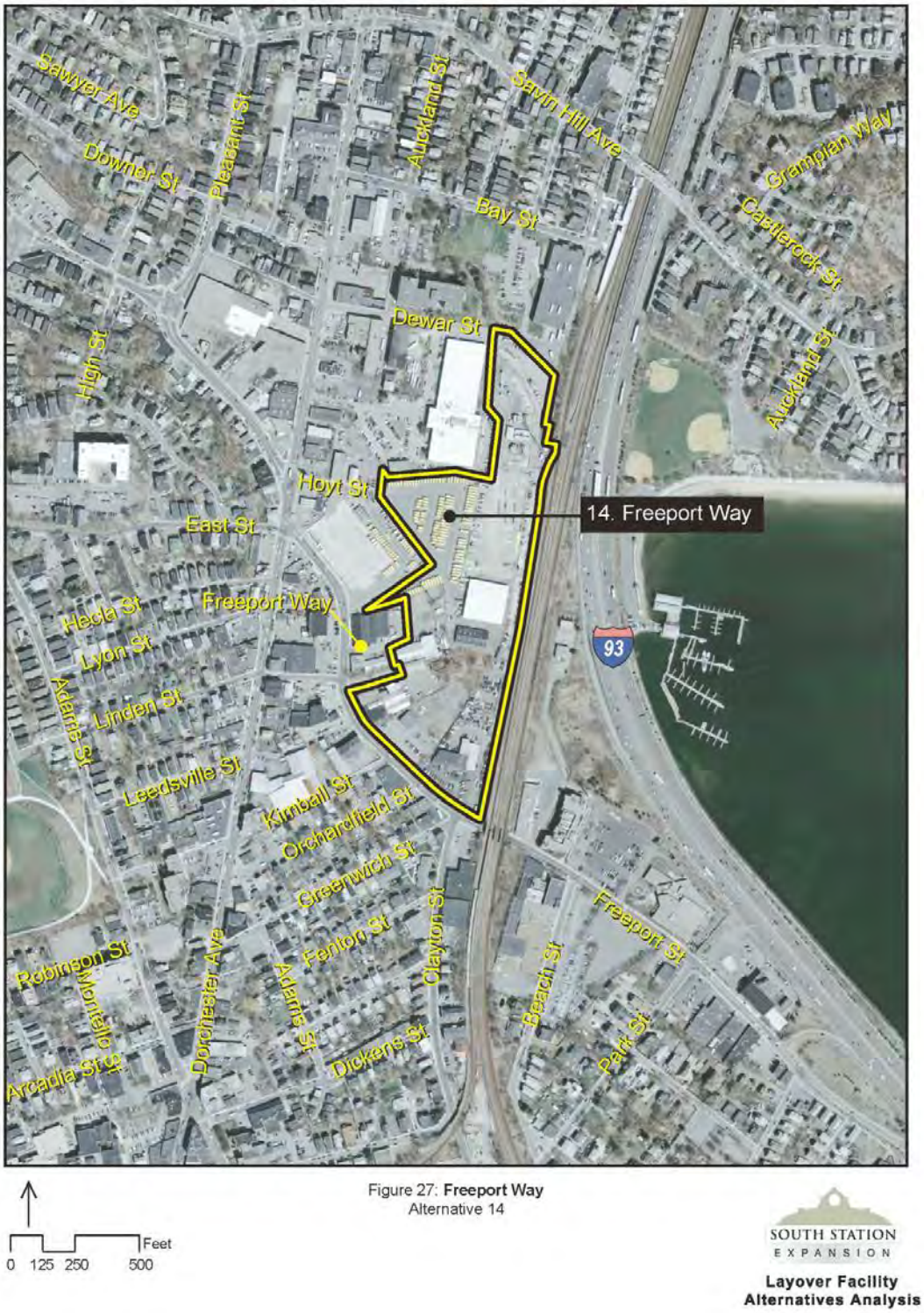

**Figure 28 Freeport Street – Alternative 15**

Figure 28: **Freeport Street**
Alternative 15

**Figure 29 Victory Road – Alternative 16**

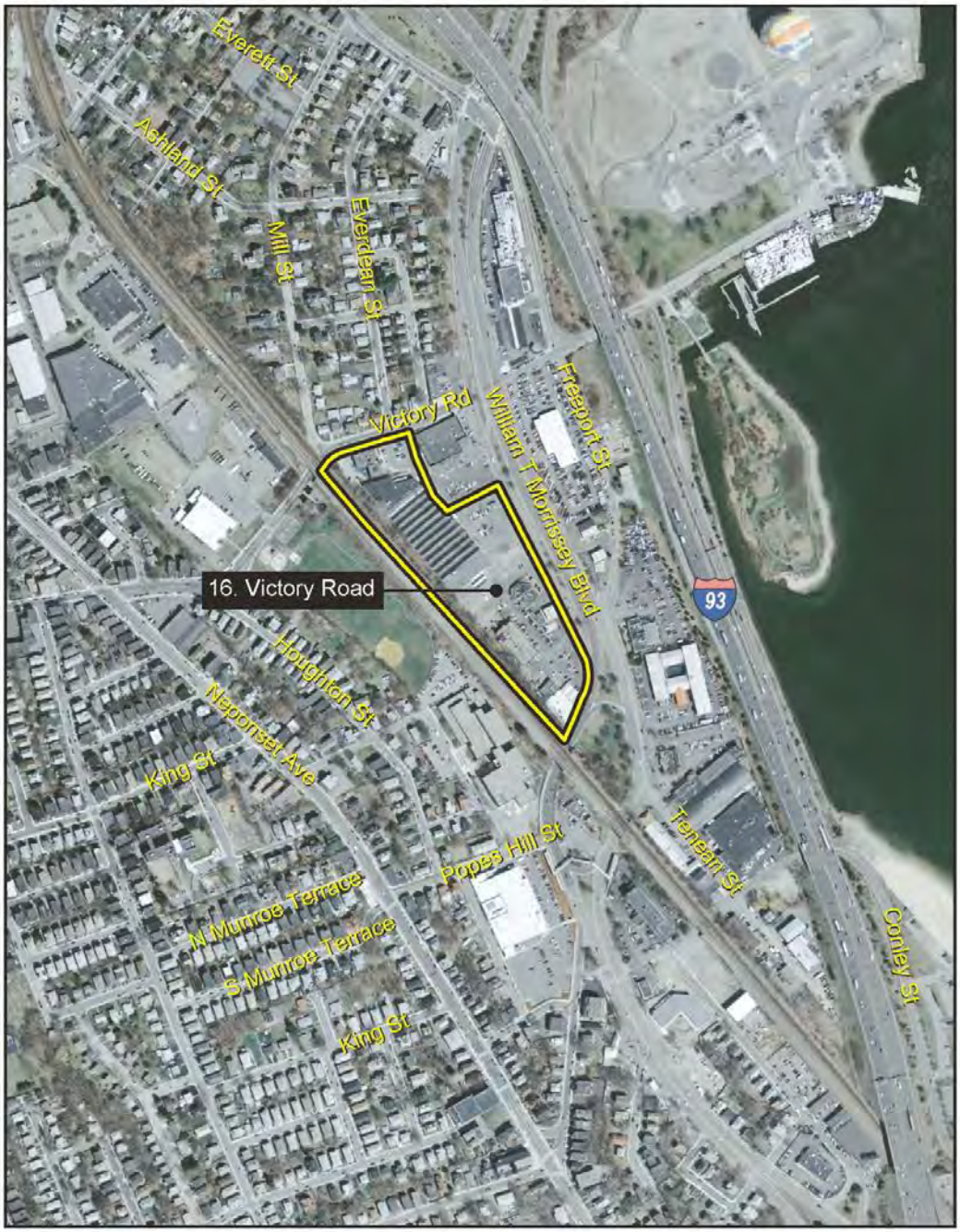


Figure 29: **Victory Road**
Alternative 16

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 30 NSTAR – Alternative 17**

Figure 30: **NSTAR**
Alternative 17

0 125 250 500 Feet

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 31 Forest Hills – Alternative 18**

Figure 31: **Forest Hills**
Alternative 18

**Figure 32 Lanesville Terrace – Alternative 19**

Figure 32: **Lanesville Terrace**
Alternative 19

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 33 Readville - Yard 2 – Alternative 20**

Figure 33: **Readville-Yard 2**
Alternative 20

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 34 Readville - Yard 5 – Alternative 20A**

Figure 34: **Readville-Yard 5**
Alternative 20A

**Figure 35 Readville - Yard 1 – Alternative 20B**

Figure 35: **Readville-Yard 1**
Alternative 20B

**Figure 36 Arborway Bus Facility – Alternative 21**

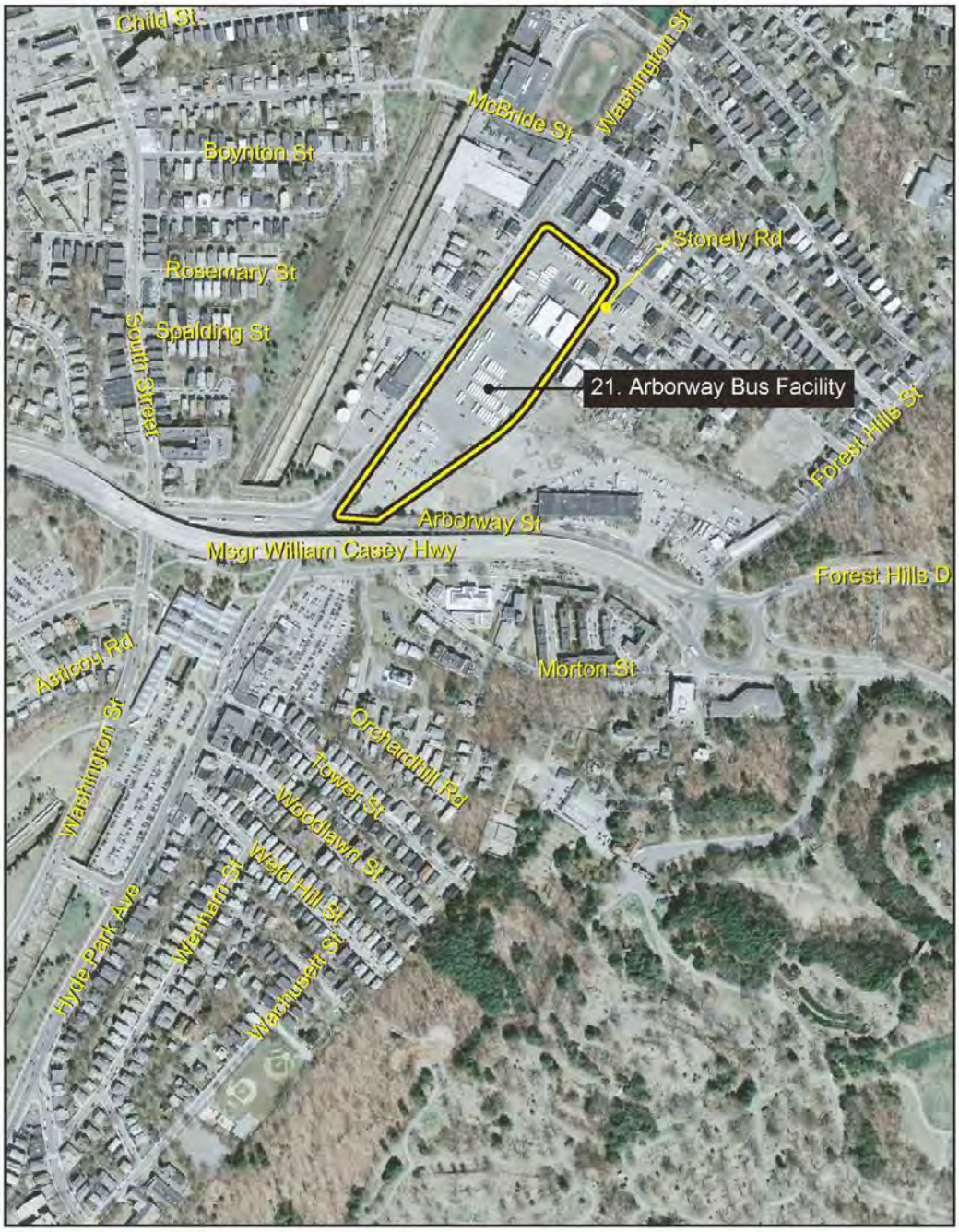


Figure 36: **Arborway Bus Facility**
Alternative 21

**Figure 37 Arborway MBTA Design & Construction Building – Alternative 22**

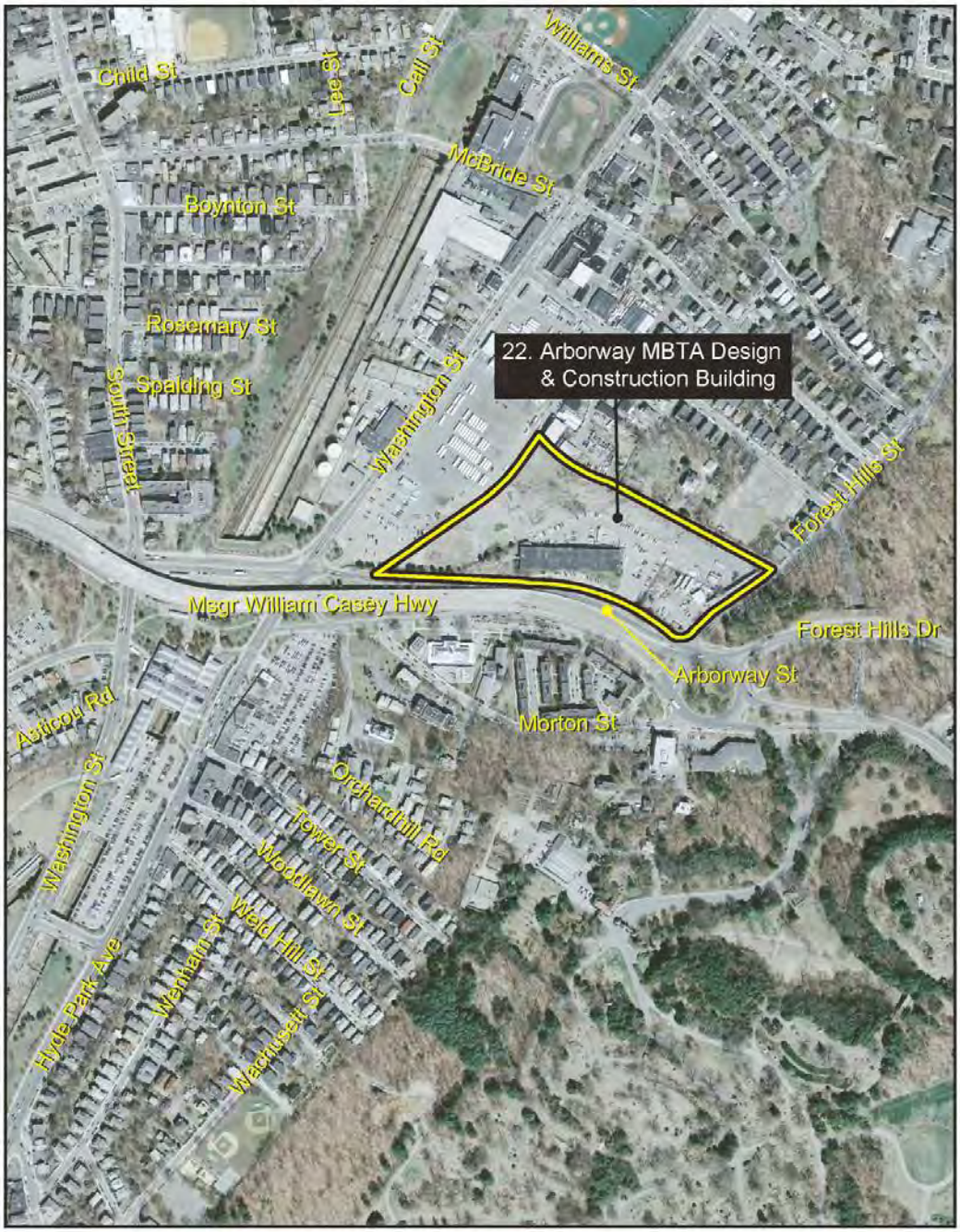


Figure 37: **Arborway MBTA Design & Construction Building**
Alternative 22

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 38 D Street – Alternative 23**

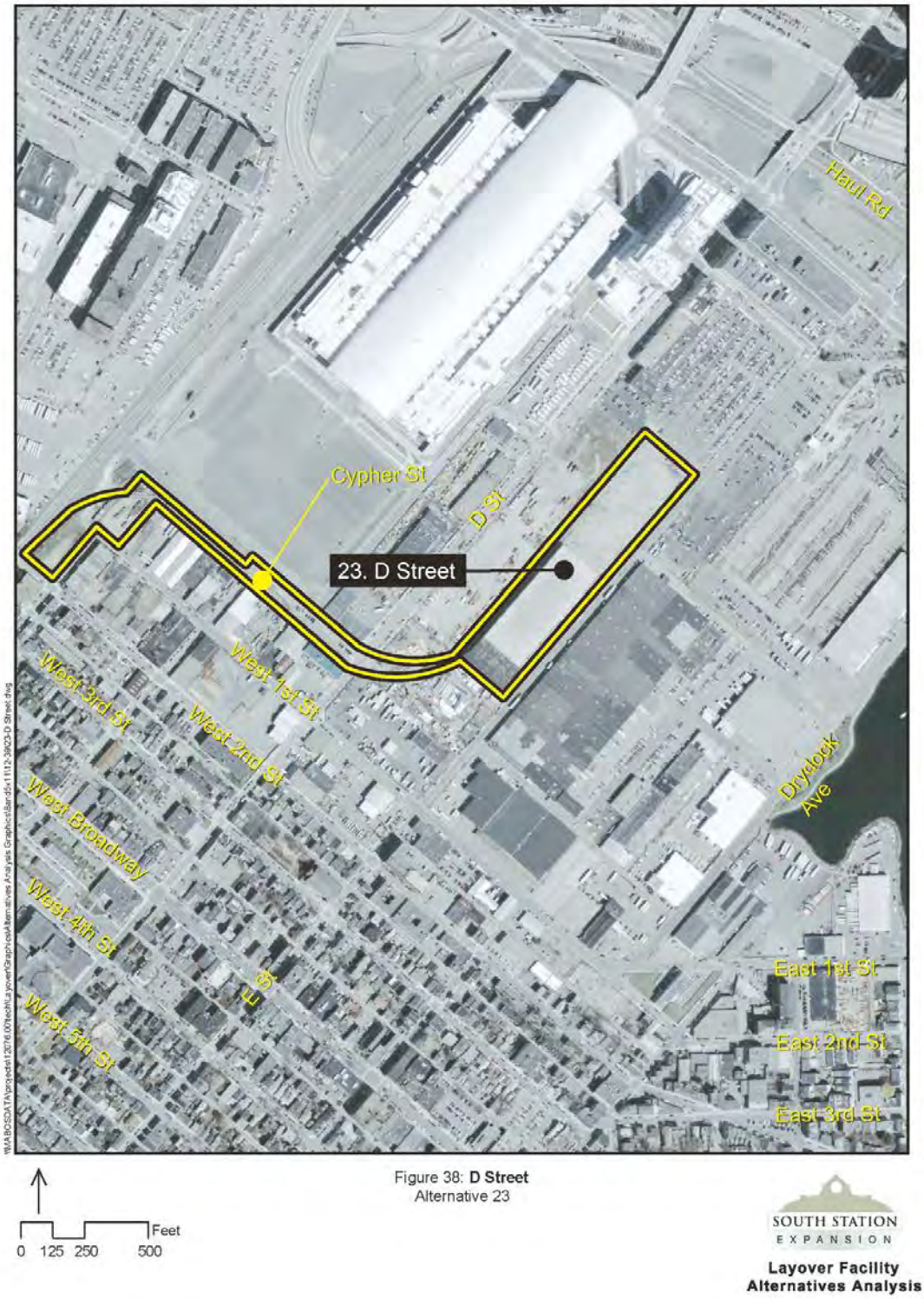

**Figure 39 A Street – Alternative 24**

# Attachment B Tier 2 Alternatives - Figures

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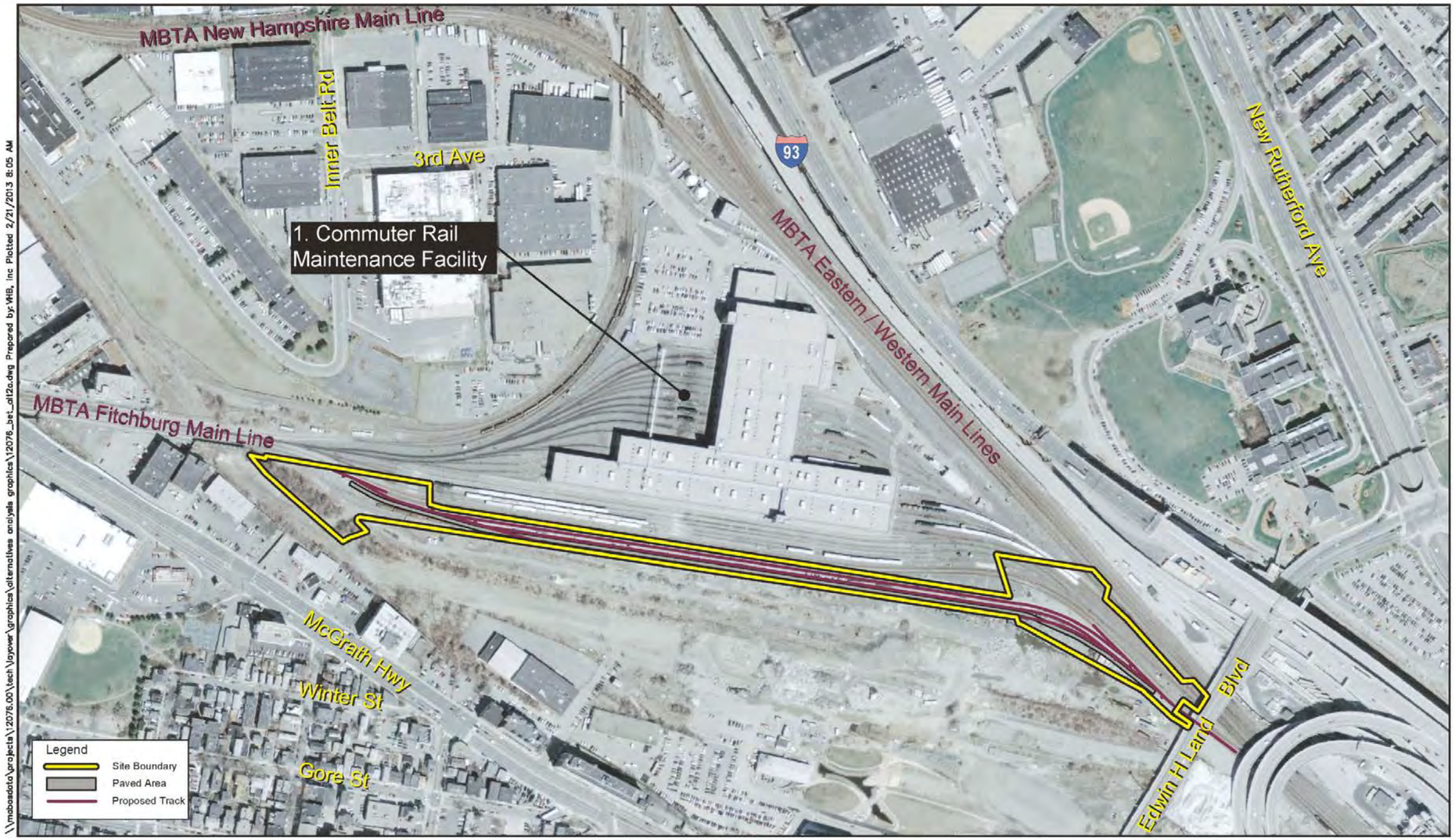
**Figure 40 Commuter Rail Maintenance Facility – Alternative 1**




| Train Capacity Summary Chart | |
|---|---|
| 8-CAR TRAINS AND 1 LOCOMOTIVE | 6 |

Figure 40: **Commuter Rail Maintenance Facility**
Alternative 1

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 41 Beacon Park Yard – Alternative 2**

| Train Capacity Summary Chart | |
|---|---|
| 8-Car Trains and 1 Locomotive | 30 |

Figure 41: **Beacon Park Yard**
Alternative 2

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 42 Cold Storage – Alternative 3**

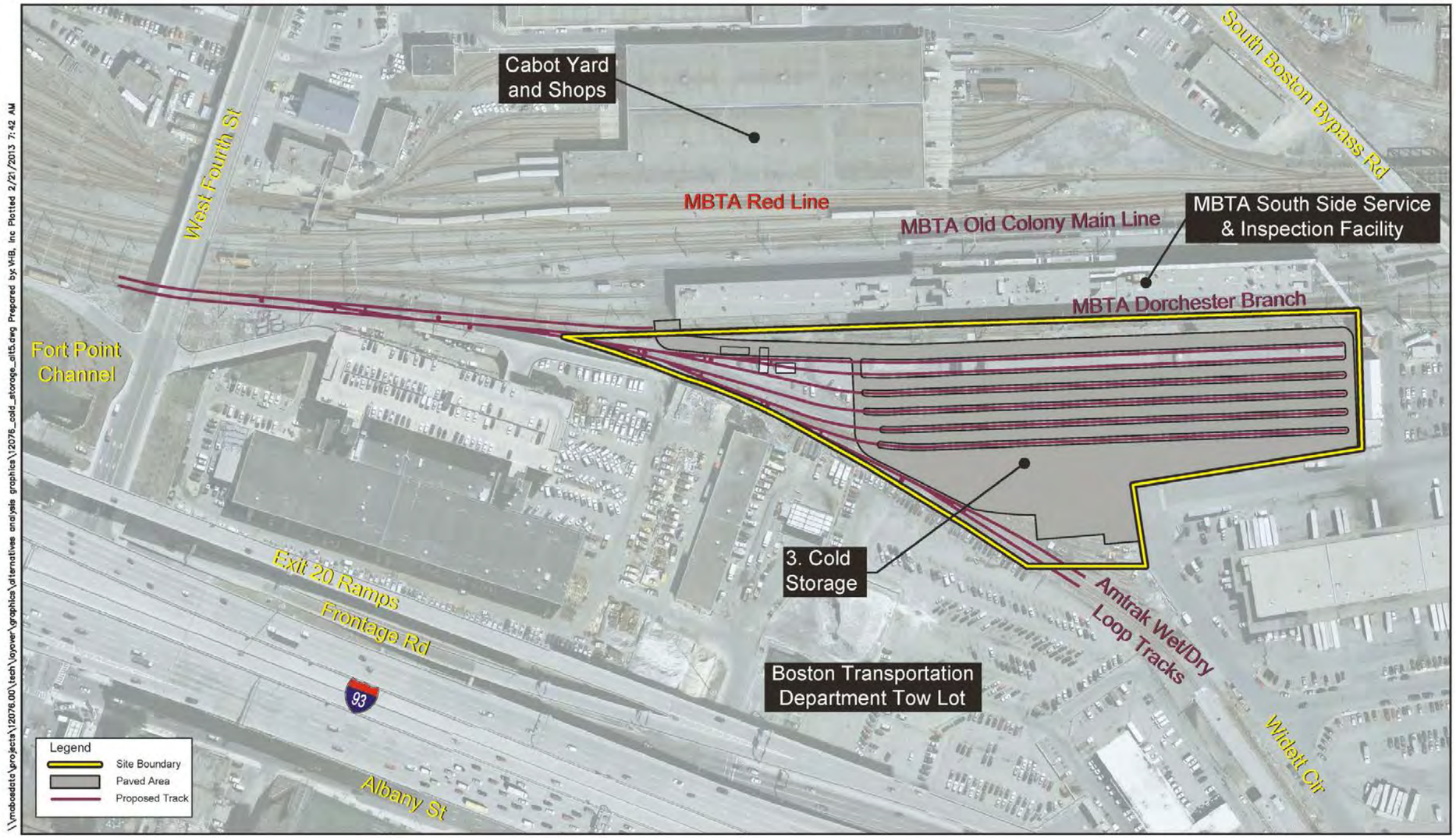



Figure 42: **Cold Storage**
Alternative 3

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 43 Boston Transportation Department Tow Lot – Alternative 5**

Train Capacity Summary Chart

| | |
|---|---|
| 8-Car Trains and 1 Locomotive | 10 |

0 37.5 75 150 Feet

Figure 43: **Boston Transportation Department Tow Lot**
Alternative 5

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 44 Amtrak Southampton Street Service & Inspection West – Alternative 10**

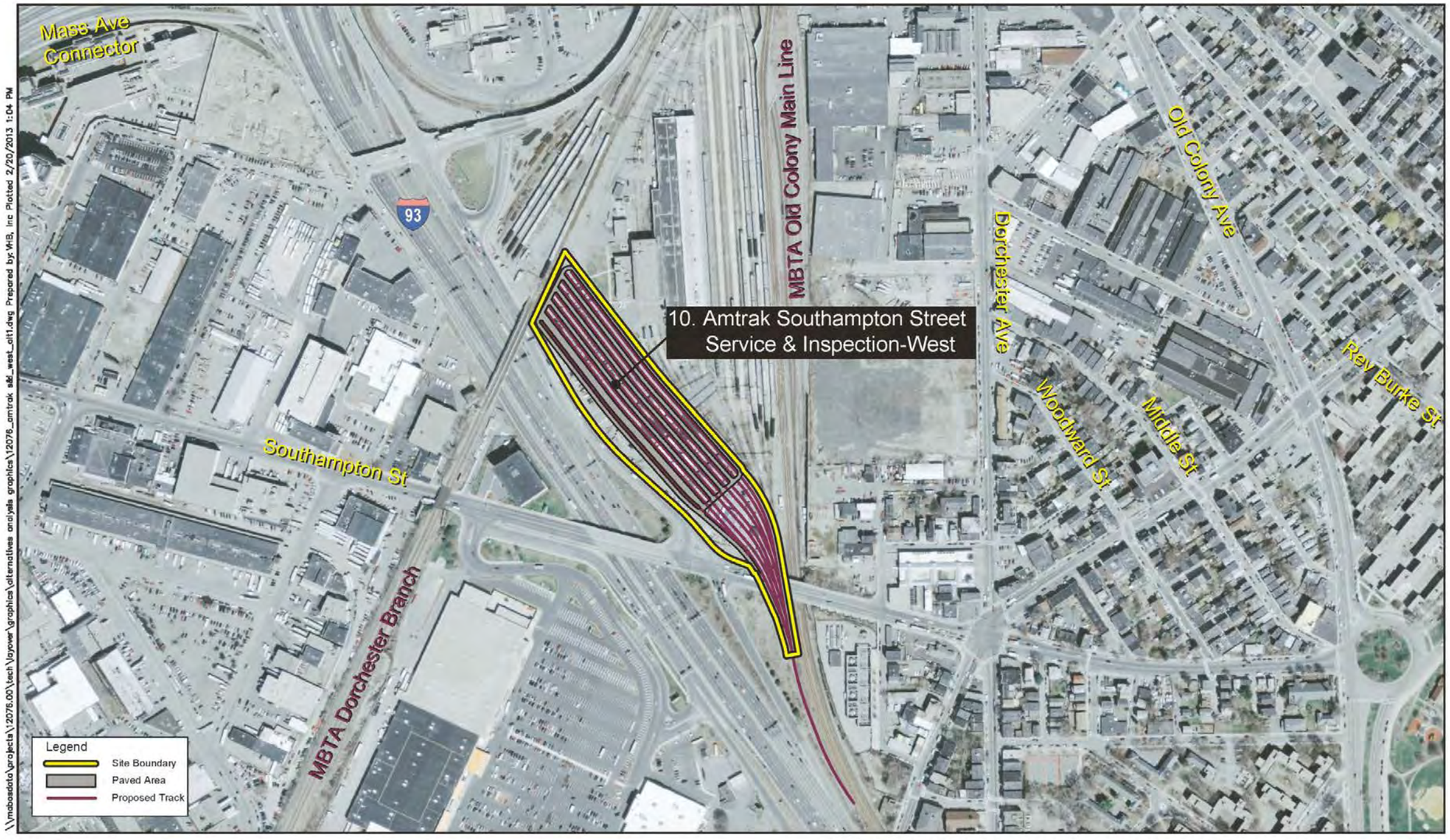



Figure 44: **Amtrak Southampton Street Service & Inspection-West**
Alternative 10

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 45 Dorchester Avenue – Alternative 11**

**Figure 46 NSTAR – Alternative 17**

**Figure 47 Forest Hills – Alternative 18**

Figure 47: **Forest Hills**
Alternative 18

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 48 Lanesville Terrace – Alternative 19**

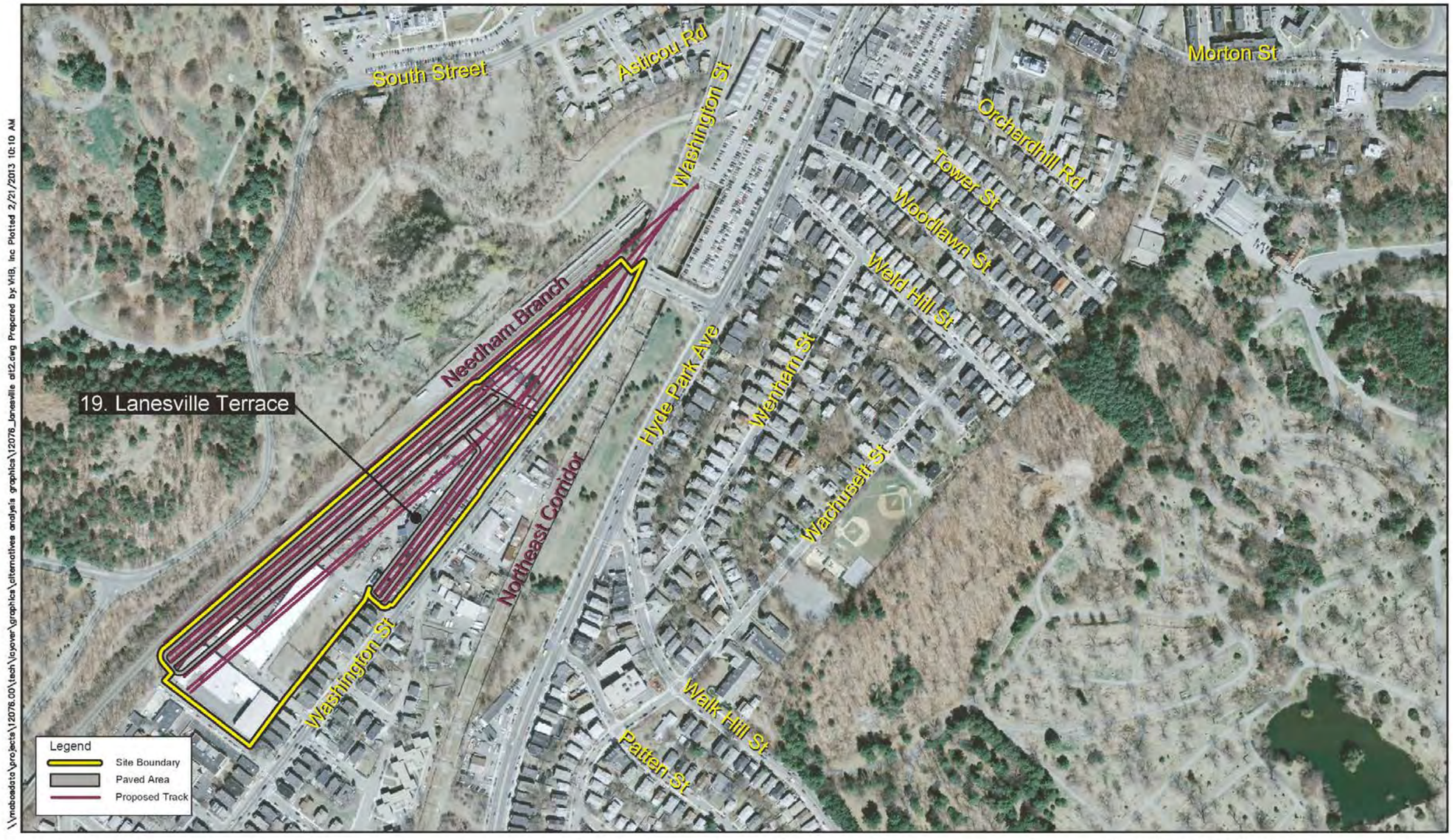
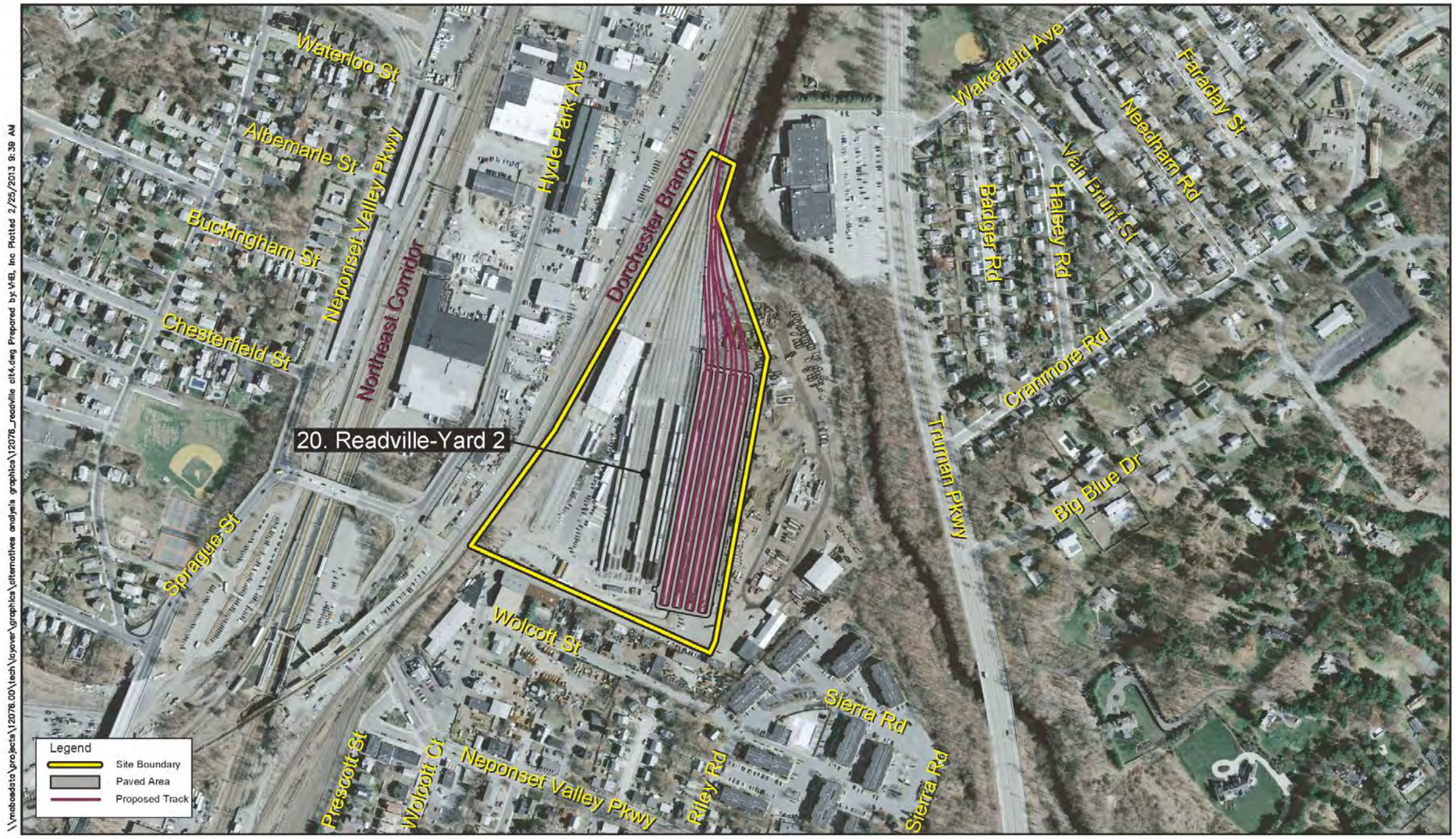



Figure 48: **Lanesville Terrace**
Alternative 19

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 49 Readville - Yard 2 – Alternative 20**




Train Capacity Summary Chart

| | |
|---|---|
| 8-Car Trains and 1 Locomotive, Existing | 10 |
| 8-Car Trains and 1 Locomotive, Proposed | 8 |

Figure 49: **Readville-Yard 2**
Alternative 20

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

# Attachment C Layover Design Guidelines

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# Layover Design Guidelines

This chapter describes the general guidelines used in the site selection process of a new passenger rail layover site. These guidelines have been established based on communications and documentation of existing Amtrak and MBTA layover operations. Layover sites serve two main purposes:

- Provide an area to store trains and stage them for the next revenue run, and;
- Provide an area to service, inspect and perform minor repairs of railroad equipment.

This chapter describes the typical guidelines for layover sites including: location guidelines; service, inspection and maintenance guidelines; rail yard guidelines; and operational guidelines.

## Location Guidelines

There are several variables to analyze when considering the optimal location of a proposed layover site. Some of these variables have a potential to play a major role in the overall efficiency of Amtrak's and/or the MBTA's daily operations. These variables include, but are not limited to, the following:

- **Main Line Rail Access**: The new layover site shall be directly accessible from a main line track to provide the most efficient operation of train movements to and from layover. Yard lead tracks should be long enough to accommodate switching movements (such as rearranging car order in a layover yard) without fouling[31] the main running tracks. Rail access routes that would require public or private at-grade crossings or that would traverse sensitive areas are also to be avoided, to the greatest extent possible. Routes that entail tight curves or other operating conditions that restrict train movements or create undesirable impacts on adjacent land uses should also be avoided to the greatest extent possible.
- **Roadway Site Access:** The new layover site shall be accessible to commercial and emergency service vehicles as well as accessible to employees who will work at, or report to this site. Commercial vehicles need access to deliver supplies such as fuel, oil, parts, food, parcels, and oversized shipments.
- **Proximity to South Station:** Trains traveling to or from the layover sites deadhead to and from South Station.[32] Deadhead distance should be minimized to reduce congestion on main lines, wear and tear on equipment and infrastructure, crew time and operating costs. The distance and/or time it takes a train and crew to deadhead to and from South Station will have an impact on operations and maintenance (O&M) costs for the life of the project. Sites within four track-miles are preferred.
- **Site Characteristics:** The site must accommodate multiple trains on parallel tracks. A level site is a necessity for any tracks where trains will be staged. Rectangular or elongated sites are preferred. In addition to the tracks, the site may also need to accommodate features such as buildings, circulation roads, stormwater runoff infrastructure, power substation, parking, and storage.

[31] Fouling a track is a railroad industry term used to describe the placement of an individual or an item of equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on-track equipment, or within a pre-determined distance from the nearest running track.

[32] Deadheading is a railroad industry term used for the movement of revenue equipment in a non-revenue mode. Deadheading is used to shift equipment and/or crews between locations when they are not in revenue service.

- **Environmental Elements:** Depending on the location of the layover site and the nature of nearby land uses, it may be necessary to provide a noise barrier and/or visual screen of the yard along one or multiple sides. Additionally, if train service and/or fueling are conducted at a site, recovery/containment systems are required to provide a means of collecting fluids that may be spilled to prevent potential pollution of the surrounding environment. An on-site treatment facility may also be provided in combination with the recovery/containment system to process, treat, and/or discharge the wastes in accordance with applicable environmental regulations and permits. Layover sites require that stormwater management practices are conducted in accordance with applicable environmental regulations. Typical stormwater management practices required at a layover site may include a detention basin and an oil/water separator tank. All of the aforementioned environmental elements are anticipated to support layover sites for Amtrak and the MBTA in the vicinity of South Station.

## Railroad Equipment Service Guidelines

Railroad equipment requires service, inspection, running repairs, and maintenance on a regular basis. The nature of the requirements to keep railroad equipment operating safely and efficiently vary greatly and can be federally mandated or based on industry standards, manufacturer guidelines and/or railroad policy. Layover sites provide a number of functions beyond the temporary storage of trains when they are out of revenue service. Facilities must be properly designed and equipped to perform several other train service and inspection functions. In some cases more than one location is required for a railroad to adequately support its operations. For the purposes of this study, it is assumed that both Amtrak and MBTA will continue to operate layover and other support areas in close proximity to South Station to complete these support functions, including:

- **Equipment inspection:** Title 49 of the Code of Federal Regulations (CFR) Part 238,[33] requires new brake inspections and added requirements for maintaining brake system pressurization for parked trains. The brake system pressurization requirement mandates re-testing of the brakes if the brake system is disconnected from a source of compressed air for more than four hours. Yard air systems are needed to allow locomotives to be shut down during layover.

  The FRA brake inspection requirements contained in 49 CFR Part 238 also require brake systems be visually inspected for proper application. While the condition of some coach brake systems may be verified visually from grade level to insure proper application, the increasing use of inboard brakes requires inspection from within the gauge of the track, under the car. This has often been accomplished through provision of an inspection pit running the full length of a train. Alternatively a shorter pit can be used with the inspections occurring as the trains roll slowly over the pit. The inspection pit must be equipped with adequate lighting and drainage, with provision for drainage to be carried into a spill containment system. Remote inspection systems, which accomplish some aspects of this task without use of an inspection pit, have been implemented by other railroads as an industry standard which Amtrak and/or MBTA may elect to adopt for use in their respective facilities in the future. The MBTA's policy for servicing and maintaining its commuter rail fleet adheres to these three factors: MBTA guidelines to inspect and maintain the equipment to a state of good repair and reliability;

- The manufacturer's service and maintenance guidelines ("owner's manual"); and

- All applicable federal regulations including Part 229 Railroad Locomotive Safety Standards[34] and Part 238 Passenger Equipment Safety Standards, both of which are detailed in Title 49 of the CFR.

It is assumed that Amtrak maintains a similar policy for servicing and maintaining its fleet of equipment.

- **Running repairs:** Running repair consists of minor maintenance that can be accomplished in the time available during a scheduled train layover. Typical running repair activities include replacement of lights, brake shoes, air hoses, and HVAC system components as well as fixing jammed doors, and patching of seats. Running repairs also include checking and topping off fluids as needed to support train consists.

[33] Federal Railroad Administration, Department of Transportation. Title 49 Code of Federal Regulations Part 238 – *Passenger Equipment Safety Standards*. November 1, 2011. Accessed at: http://www.gpo.gov
[34] Federal Railroad Administration, Department of Transportation. Title 49 Code of Federal Regulations Part 229 – *Railroad Locomotive Safety Standards*. April 9, 2012. Accessed at: http://www.gpo.gov

- **Interior cleaning:** During layover periods, the interior of each vehicle is picked up and any trash is removed. Lost and abandoned items are removed and sent to a lost and found facility. Cleaning of the coaches can be performed in the Service and Inspection building or in the layover yard itself. In general, it is preferred that cleaning takes place inside the Service and Inspection building, in a controlled environment, with high level platform access to the coaches.
- **Food service and preparation:** There are no dining services provided on MBTA commuter rail trains; however Amtrak currently supplies the food and meals for their café cars at the Southampton Street Yard Maintenance facility. This function is currently performed in a standalone building with good vehicular access for deliveries and for supplying provisions to the coach café cars.
- **Equipment and material storage areas:** Because light maintenance and cleaning are conducted during layover periods, a secure location for the storage of supplies and spare parts is needed. Separate storage areas should be considered for support of the site itself, such as paper products, office supplies, snow equipment, cleaning equipment and restroom supplies. Storage areas must adequately store equipment and materials required to support the operation and maintenance activities conducted by the various crews at each layover location.

**Table 10 Functions by Facility Type**

| Frequency | Function | Facility Type | | |
|---|---|---|---|---|
| | | Layover | Service and Inspection | Maintenance |
| Daily | Calendar Day Mechanical Inspection * | ● | | |
| | Cleaning Service * | ● | | |
| | Storage of Consists* | ● | | |
| | Food Service and Preparation | ● | | |
| | Fueling Service | | ● | |
| | Sanding Service | | ● | |
| Bi-Weekly (10-14 days) | Septic Flushing Service | | ● | |
| | Watering Service | | ● | |
| | Washing Service | | ● | |
| | Running Repairs | ● | ● | ● |
| Quarterly (92 days) | Inspection and Repair | | ● | ● |
| Semi-annual (184 days) | Inspection and Repair | | ● | ● |
| Annual (368 days), Annual+ | Inspection, Repair and Testing | | | ● |
| Biennial (736 days) | Inspection, Repair and Testing | | | ● |
| Triennial (1,104 days) | Inspection, Repair and Testing | | | ● |
| Quadrennial (1,476 days) | Inspection, Repair and Testing | | | ● |
| Sexennial (2,208 days) | Inspection, Repair and Testing | | | ● |

*Typically performed at overnight layover facility

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## Layover Facility Infrastructure Guidelines

Infrastructure required to accommodate the functions of a layover site will vary at any given facility. Utilities, building structures, roadways, tracks, landscaping, fencing, lighting, among other site-specific items, are all part of the infrastructure of a layover site, as discussed below:

- **Train Storage:** Layover areas must have enough tracks of sufficient length to accommodate the number of full length trains programmed for each site. By 2040, it is assumed that all MBTA consists will be eight bi-level coaches and one locomotive. The tracks must be configured so the breakdown of a single train would not trap other operational trains at the site. Design provisions to avoid trapping operational trains behind a disabled train at layover facilities include providing an escape track, internal yard crossovers, or a tail track to allow an engine to run around a disabled train. Layover areas and supporting infrastructure must be properly sized and configured appropriately to accommodate these longer train sets without impacting service.

- **Train Movements:** The majority of train movements in the layover yard will be train consists entering and exiting the yard as well as train consists moving to or from the Service and Inspection area. There will likely be a dedicated crew and locomotive in the yard to make up new consists, swap out equipment, and to shuttle crewless train consists from a layover track to the Service and Inspection area and back. Not all trains will need to enter the Service and Inspection building every day, but will require fueling and sanding on a daily basis. Track configurations through and adjacent to the Service and Inspection/fueling area should be double-ended to allow for the most efficient train movements. Simultaneous train moves in the yard should be possible and at times throughout the day, necessary to maintain schedules at the Service and Inspection area and timetable revenue passenger schedules. The layout of the yard and configuration of tracks should allow flexibility and redundancy in the case of a disabled train, or track out of service.

- **Vehicular Circulation:** In addition to the parking area and the main site access road, every track in the yard that is used to store trains shall be adjacent to at least one access lane. These access lanes shall be able to accommodate train crews, mechanical crews, cleaning crews, maintenance-of-way crews, emergency vehicles, passenger vehicles, pickup trucks and snow removal equipment.

- **Utilities:** Utilities may include electricity, sewer, water, cable/telephone, and gas. While most utilities will be routed underground, a power substation may be required. The power substation could require a large footprint on the site, especially if the rail yard has an electric catenary system.

- **Buildings and Structures:** A layover site includes enclosed space to support the various railroad department crews and equipment required by all aspects of operations occurring within that site. At a minimum, operating department road foremen, yardmasters, and trainmasters will require office space to perform their duties to support train movements within the yard. Storage areas must adequately store equipment and materials required to support the operation and maintenance activities conducted by the various crews at each layover location.

  Train layovers in the area of South Station typically operate between two to four hours daily (weekdays). In some cases they may be operational 10 hours or longer, necessitating crew accommodations with rest areas, HVAC, restrooms, lockers and provisions for waiting possibly including a food preparation area and/or vending machines. The accommodations should also

include a separate space for conducting job briefings for crews going back on duty as well as an area to assemble train orders and obtain track authority paperwork. These sites typically serve as headquarters for switching crews working in the yard.

Other supporting departments, such as engineering, railroad police, maintenance-of-way, communication and signals, bridge and buildings, power, or overhead contact systems, often use a centralized facility such as a layover facility as a headquarters location.

- **Security and Lighting:** Security measures must also be implemented to insure that sites are not accessible to the general public. Site security measures typically include perimeter fencing and gates, site lighting, key/card access to buildings, remote cameras, and building alarms.

## Operational Guidelines

While a single alternative may provide all or most of the physical space needed to fulfill the projected layover need, using a single location to layover too many consists may be detrimental to railroad operations at South Station's interlocking plant, known as Tower 1. In railway signaling terms, an interlocking is defined as an arrangement of signals and apparatus that prevents conflicting movements through an arrangement of tracks such as junctions or crossings.

In keeping with the overall objective of the project to allow for increased high speed and intercity rail service, the layover sites should be situated so as to not interfere with Amtrak operations to the greatest extent possible. This means that revenue trains heading to layover or layover trains heading for revenue service should minimize, to the greatest extent possible, the need to unnecessarily cross over tracks at Tower 1 and the setup interlockings. Because of a split in the South Station/Tower 1 area, in order to allow for optimal performance of railroad operations, trains should be traveling to layover sites based on their platform location at South Station. Trains on western platforms should be laying over at points west or southwest of the station while trains on the eastern platforms should be laying over at points south of the station. It is assumed that Amtrak will continue to use its Southampton Street Yard facility for layover and maintenance purposes so Amtrak trains would be best to use the centrally located platform tracks. The MBTA Framingham/Worcester, Needham, some Franklin and some Providence/Stoughton Line trains would be best to use the tracks situated on the western side of the station. The MBTA Greenbush, Plymouth/Kingston, Middleborough/Lakeville, Fairmount, some Franklin and some Providence/Stoughton Line trains would use the eastern side of the station.

The general layout of layover facilities, support buildings, yard tracks and lead tracks should complement the overall operational need of the layover site. The yard lead should be designed in a manner that will expedite the movement of trains in preparation of peak periods and allow some redundancy for operational flexibility.

A control tower and a yard switcher would also be operational guidelines of a new layover site and would have the functions described as follows:

- **Control Tower:** The purpose of the control tower or control office, is to expedite train movements. Train operations within a complex layover yard and maintenance facility will require a control system to manipulate turnouts and signals used within yard limits. The yard office typically accepts trains exiting a main line track and routes them through the yard to the proper storage or maintenance track. This takes the burden off of the main line dispatcher and allows the yardmaster to coordinate trains locally.
- **Yard Switcher:** The yard switcher will serve several purposes inside and outside of the layover yard. Some of the duties assigned to the yard switcher are:
    - When trains enter the layover yard and the crews are released to the welfare facilities, the train consists will still need to move about the yard to get fueled and run through the Service and Inspection shop. In this instance, it makes sense to have a crew dedicated to shuffling trains in the yard, whether by boarding the consist or by coupling to the consist with a switcher locomotive.
    - From time to time, new consists will need to be assembled to fulfill the needs of the equipment cycle. The yard switcher builds trains, swaps equipment and moves the equipment to the necessary tracks.
    - Shuttling equipment back and forth from the MBTA's Commuter Rail Maintenance Facility (CRMF) in Somerville is usually performed with the use of the yard switcher. This is

necessary to exchange equipment that is due for FRA interval inspections or heavy maintenance and repairs.

- The yard switcher is on standby to rescue disabled equipment on the main lines and return the equipment to the Service and Inspection shops, if necessary.

## Railroad Design Criteria

The purpose of this section is to identify the design parameters used during conceptual design of the new layover site and the basis of design as this project moves forward into Preliminary Engineering. As this project progresses, the designs will be refined and modified to accommodate changes in design guidelines for this project. This section contains descriptions for the following design criteria:

- General
- Design Speeds
- Horizontal Alignment Design Criteria
- Vertical Alignment Design Criteria
- Track Gauge
- Trackwork Design
- Track Structure
- Roadway Design
- Clearances
- Overbuild of Right-of-Way

### General

Roadway design shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 3, Geometric Design Criteria*[35] except as noted herein.

- In territory with Amtrak operations, the roadway design shall also conform to National Railroad Passenger Corporation *Limits and Specifications for Track Safety Maintenance and Construction MW 1000*[36] and Amtrak SPEC NO 63 *Track Design Specification*.[37]
- Minimum track length shall accommodate an eight car consist with one locomotive, resulting in 751 feet between clearance points.
- While it is desirable that yard tracks are tangent, since yards are not within platform limits, curved track will be acceptable.

### Design Speeds

- Main Tracks (Passenger): 70 mph (2.75" Unbalance superelevation)
- Maximum speed: Maximum speed allowed by local conditions

Freight trains' maximum authorized speed shall be governed by the optimal geometry for passenger operations.

[35] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 3, Geometric Design Criteria. Revision No. 1, April 19, 1996.
[36] National Railroad Passenger Corporation, Amtrak Engineering. *Amtrak Specification No. 63, Track Design Specification*. Revised October 15, 2011.
[37] National Railroad Passenger Corporation. *Amtrak Safety Limits and Specifications for Maintenance and Construction of Track.* M.W. -1000. Revision 2, January 1, 1992.

### Horizontal Alignment Design Criteria

- Turnouts for main line will be Number 10 or greater.
- Turnouts for yards will be Number 8 or greater.
- Turnouts for industry tracks shall meet MBTA Design Criteria.
- Curvature will be defined by chord definition and degree of curvature.
- Maximum degree of curvature in yards will be 12° 30'.
- Superelevation:
    - Freights are assumed to operate on all sections of existing track, where the maximum actual superelevation (Ea) shall be 4 inches.
    - In areas where track is not used by freight trains maximum actual superelevation (Ea) shall be 6 inches.
    - In areas where track is used by freight trains maximum actual superelevation (Ea) shall be 3 inches based on 1 ½ inches of unbalance.
- Combining Spirals:
    - Combining spirals shall be used between compound curves except where Ea does not change and the difference in Eu is less than 1/2 inch.
    - Spiral lengths shall equal or exceed the following values:
        - Ls (compound) ≥ 1.63 (Δ Eu) V
        - Ls (compound) ≥ 80 (Δ Ea)
        - Ls (compound) ≥ 62 Δ Ea (where V ≤ 50 mph)

If combining spirals are used, additional definitions and equations shall be provided from *Route Locations and Design*, Fifth Edition, by Thomas F. Hickerson, McGraw-Hill Book Company, 1964.

### Vertical Alignment Design Criteria

- The vertical alignment shall be designed using the *MBTA Commuter Rail Design Standards Manual*[38] except as noted below.
- The minimum length of vertical curves shall be designed based on the *American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual* Chapter 5, Section 3.6 - Vertical Curves (Figure II-1).[39]

### Track Gauge

- 4 feet 8-1/2 inches measured 5/8 of an inch below top of rail on gauge face of the rail.

[38] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, April 19, 1996.
[39] American Railway Engineering and Maintenance-of-Way Association. *American Railway Engineering and Maintenance-of-Way Association Manual.* Chapter 5- Track, Section 3.6 Vertical Curves (2002), Figure II-1.

### Trackwork Design

Ballasted track construction will be used at all locations except on open deck bridges subject to MBTA approval. Track materials shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 4, Trackwork Criteria*[40] except as noted herein.

### Track Structure

- **Rail:** All new rail shall be 132 RE section, continuously welded rail (CWR). Electric flash butt welding shall be used wherever possible for field welds. CWR strings shall be field cut for insertion of special trackwork and insulated joints. Insulated rail joints shall be shop-manufactured per MBTA Drawing Number 1340.

  Suitable relay rail may be used on freight sidings and yards, maintenance of way tracks, and other non-revenue areas.

- **Ties:** Wood crossties shall be used on all main tracks, bridges with bridge guardrail and special trackwork. Rail shall be fastened to the ties using a resilient fastener system to be specified by the MBTA. Vibration dampening tie plates and fasteners shall be used on all open deck bridges and on direct fixation trackwork.

- **Rail Lubricators:** All existing rail lubricators shall be relocated as required.

- **Railroad Signs:** Mileposts, whistle and repeat whistle posts, and speed restriction signs shall be as specified in the MBTA's *Railroad Operations Book of Standard Plans*.[41]

### Roadway Design

Roadway Design shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 5, Roadway Criteria*[42] except as noted herein.

- **Track Roadbed:** Track roadbed shall generally conform to MBTA Standard Drawing Numbers 1000 and 1002.

- **Slopes and Walls:** Side slopes shall generally be 2H:1V. Stabilized 1.5H:1V slopes will be considered where steeper slopes are required to avoid wetlands, right-of-way lines, or excessive earthwork, and existing slopes in the vicinity demonstrate that 1.5H:1V slopes are stable.

- Retaining walls or reinforced slopes may be used to avoid land acquisition or wetlands impacts associated with normal side slopes. A reinforced slope will be specified where a 1H:1V slope can be placed within the site constraints; otherwise a retaining wall will be used. Retaining walls will generally be contractor designed based on a wall elevation and performance specifications. Mechanically stabilized earth panel walls and precast modular walls will be approved systems. Walls shall be placed at least 10 feet from centerline of nearest track wherever possible. Walls shall be topped with a concrete cap with embedded 6-foot chain link fence. Wall layout and specifications shall account for the characteristics of all permitted wall systems including, tiebacks and whalers, geogrids, and wall thickness. Design of track drains and culverts must be

[40] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 4 – Trackwork Criteria, April 19, 1996.
[41] Massachusetts Bay Transportation Authority. *Railroad Operations Book of Standard Plan,* October 28, 1992. Revised April 29, 1996.
[42] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 5 – Roadway Criteria, April 19, 1996.

coordinated with layout and drainage requirements of each wall. Duct banks or cable troughs may be required to avoid conflicts between signal and communications cables and buried wall components such as geogrids.

### Clearances

Track centers and clearances to horizontal and vertical obstructions shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 6, Clearance Criteria*[43] except as noted herein.

- **Track Centers in Tangent Section of Track:** the minimum horizontal distance between railroad track centerlines shall be 14 feet.
- **Track Centers within yard limits:** the minimum horizontal distance between railroad track centerlines shall be 18 feet.
- Road widths within yard limits shall be 14 feet with 24 feet between track centers.
- **Track Centers in Curved Sections of Track:** the minimum horizontal distance between track centers and track center widening in curves shall be as shown in MBTA Standard Drawings, 1000 Series.
- **Yard tracks and Industry Sidings Track Centers:** the minimum distance between yard tracks and freight sidings parallel to a main track shall be no closer than 17 feet-0 inches from the centerline of any main track. See MBTA Drawing Number 1020 for more information on Industry Sidings.
- **Standard Side Clearances:** Standard side clearances from the centerline of track including clearance increases for curvature and superelevation shall be as shown in MBTA standard drawings.
- Track with existing freight service shall provide minimum clearances and allow for Plate E clearance.
- Bridges passing over the railroad will be required to meet existing vertical clearances.
- Vertical Clearances are measured from the top of rail projected 8 feet -6 inches from centerline of track to bottom of structure.
- The above clearances are based on the following assumptions:
  - Provision for future track raising is not included.
  - Provision for double stack freight clearances is not provided.
- **Standard Clearances Tangent Track Signal Equipment & Utility Crossings:** Standard Clearances Tangent Track Signal Equipment and Utility Crossings shall be as shown in MBTA Drawing Number 1014.
- Dwarf signals, through plate girders shall be as shown in MBTA Drawing Number 1014.
- **Safety Niches:** Continuous obstructions (e.g. sound barriers, walls.) are allowed to encroach within standard clearance. See the *MBTA Commuter Rail Design Standards Manual* for more information.
- Any horizontal clearance below standard clearance track requires written approval.

[43] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 6 – Clearance Criteria, April 19, 1996.

- Minimum distance from track center to face of catenary pole shall not be less than 8 feet-6 inches in tangents.

### Overbuild of Right-of-Way

Layover yards located in closed or partially enclosed structures shall provide for adequate ventilation, illumination, emergency egress and fire protection to provide a safe environment for employees during normal and emergency operations. The design will make all accommodations to the above grade structure, and shall be responsible for the design, construction and maintenance of the systems in conformance with MBTA design standards, AREMA guidelines, FRA regulations, and applicable local, state and federal building codes and referenced documents.

Overbuild and air rights legal agreements between two or more parties may also contain conditions of design or design criteria specific to the agreement. The conditions of such agreements pertaining to design shall be met to the greatest extent possible without conflict of the aforementioned standards, guidelines, regulations and codes.

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SOUTH STATION
EXPANSION

# Layover Facility Alternatives Analysis

*March 2013 Version 0*

massDOT
Massachusetts Department of Transportation

**Back of cover page**

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# 1. Introduction

The Massachusetts Department of Transportation (MassDOT), in cooperation with the Massachusetts Bay Transportation Authority (MBTA), National Railroad Passenger Corporation (Amtrak) and the Federal Railroad Administration (FRA), is evaluating an expansion of Boston's South Station. The South Station Expansion (SSX) project is being undertaken by MassDOT to allow for additional intercity and high-speed rail (HSR) service into Boston's South Station without limiting the MBTA's ability to deliver efficient commuter rail service.

The current track capacity, layout, and operations of South Station limit the ability to achieve projected future expanded services. The SSX project includes planning, environmental reviews, and preliminary engineering for five primary elements of the project:

1. **Expand the South Station terminal facilities**, including the addition of up to seven (7) tracks and platforms and construction of a new passenger concourse and other amenities.
2. **Acquire and demolish the U.S. Postal Service (USPS) general mail facility** located on Dorchester Avenue adjacent to South Station, which will provide an approximate 16-acre site onto which to expand South Station. (Note that the relocation of the USPS facility will be the subject of a separate environmental review process by others.) Dorchester Avenue will be restored for public and station access.
3. **Create an extension of the Harborwalk along reopened Dorchester Avenue.**
4. **Provide for the possibility of future joint public/private development** adjacent to and over an expanded South Station.
5. **Provide adequate rail vehicle layover space** to address existing and future intercity and commuter rail service needs.

Figure 1 illustrates the South Station project area, which encompasses the South Station headhouse, the South Station Bus Terminal, and the USPS facility.

The focus of this report is the layover element of the project. This report assesses existing and future layover capacity needs at South Station and identifies and evaluates potential layover sites to accommodate future growth. It is organized in six chapters:

- **Chapter 1 – Introduction:** Chapter 1 provides context for the layover alternatives analysis by describing the history of South Station, the purpose of the SSX project, and an overview of how current operations are hindered by limited layover capacity.
- **Chapter 2 – Existing Conditions:** Chapter 2 describes the existing layover facilities and compares the layover capacity to existing demands of Amtrak and the MBTA, thereby establishing a baseline condition to aid in future projections.
- **Chapter 3 – Future Conditions**: Building on the baseline condition presented in Chapter 2, Chapter 3 develops a forecasted supply and demand relationship to the year 2025 and 2040, thereby defining the future need that will help identify and evaluate new or expanded layover sites for consideration.
- **Chapter 4 – Identification of Layover Sites:** Chapter 4 presents the candidate layover sites that were considered for South Station operations along with the evaluation criteria used to identify these potential locations. A total of 28 layover sites are presented in this chapter.

- **Chapter 5 – Screening of Layover Sites:** In Chapter 5, the 28 candidate layover sites are evaluated based on a two-tiered screening process, which culminates in a set of three layover sites that are recommended to be carried forward for further operational analysis, environmental analysis and advanced conceptual design.
- **Chapter 6 – Conclusions and Next Steps:** Chapter 6 summarizes the next steps involving the conceptual design, refinement, and vetting of the recommended layover site(s).

## 1.1. Layover Alternatives Analysis Study Area

An integral component of South Station operations is the utilization of nearby layover yards to store, service, inspect and maintain trains when they are not in service. Layover yards are critical to operations because they provide a location to stage trains during off-peak periods, thereby keeping unused trains off active tracks to minimize congestion at stations. Some are also used for daily service and inspection activities.

As depicted on Figure 2, Amtrak and the MBTA currently utilize four layover yards for operations at South Station. They are as follows:

1. Amtrak's Southampton Street Yard;
2. Amtrak's Front Yard;
3. MBTA's South Side Service and Inspection Facility; and
4. MBTA's Readville - Yard 2.

This report demonstrates how South Station lacks sufficient layover capacity under current operations and how this will constrain future growth potential without new or expanded layover space. Keeping the current needs as a baseline, the analyses in this report consider projected operations and layover needs for Amtrak and the MBTA for the 2025 and 2040 planning horizons.

**Figure 1 South Station Expansion Project Area Map**

Figure 1: **South Station Expansion Project Area Map**

**Figure 2 Existing Layover Facilities**

## 1.2. Background

South Station is the principal passenger rail hub in New England. South Station was constructed over 110 years ago and is one of the most significant and iconic architectural structures in the City of Boston. When it first opened in 1899, South Station had 28 tracks but now has only 13, constraining current and future rail mobility not only within Massachusetts but also throughout southern New England and along Amtrak's Northeast Corridor (NEC).

Amtrak owns and operates 363 miles of the 457-mile NEC between Washington and Boston (a total of 1,219 track-miles). South Station is the terminus of Amtrak's NEC service, as well as Amtrak's Lake Shore Limited service from Chicago via Albany. Annually, the NEC carries 13 million Amtrak passengers on the Acela Express and Northeast Regional Amtrak services. Amtrak's NEC is the busiest railroad in North America, with more than 2,200 trains operating over some portion of the Washington-Boston route each day. Approximately 1.36 million Amtrak passengers traveled through South Station in 2011.[1] As the only high-speed rail service in the U.S., Amtrak's ridership share on the NEC continues to grow and now dominates the air/rail market (75 percent of the New York-Washington market and 55 percent of the New York-Boston market).

South Station is also the terminus for the western and southern lines of the MBTA's commuter rail system, and provides connections to the MBTA Red Line and to Logan International Airport via the MBTA Silver Line. South Station's bus terminal is also a hub for intercity, regional, and local bus service in eastern Massachusetts. The MBTA's commuter rail, Red Line subway, Silver Line busway, and fixed-route city buses all serve South Station. The MBTA owns the 38 miles of the NEC between the Massachusetts/Rhode Island border and Boston/South Station that is operated and maintained by Amtrak through an operating agreement. The MBTA currently provides commuter rail service on seven branch lines on the southern portion of their system, which includes the Framingham/Worcester, Needham, Franklin, Providence/Wickford Junction, Stoughton, Fairmount, and Old Colony (Middleborough, Plymouth/Kingston, and Greenbush) lines.

In May 2010, Amtrak finalized the *Northeast Corridor Infrastructure Master Plan*[2] which identified initial infrastructure improvements needed to bring the NEC into a state of good repair, providing sufficient capacity to accommodate estimated ridership demand through 2030. Amtrak projects that by 2040, overall NEC ridership will increase by nearly threefold. Amtrak's goal is to provide hourly service between Boston and New York City with an overall trip time of approximately three hours (20-30 minutes faster than the existing trip time). This level of service will require reliable infrastructure, sufficient capacity, changes to existing track alignment, and rolling stock capable of operating at high speeds and accelerating quickly to reduce the trip time between Boston and New York. In order to realize the cumulative 50 percent increase in Amtrak high-speed and intercity passenger rail service to Boston called for in Amtrak's 2010 *Northeast Corridor Infrastructure Master Plan*, South Station and its support facilities must be expanded and improved.

South Station is operating at its design capacity for efficient train operations. All 13 tracks are fully utilized by Amtrak and the MBTA. As ridership and service levels have increased, the capacity at the MBTA's existing layover facilities during the mid-day has also been exceeded. In addition to trains that layover at one of the four facilities, due to the combination of layover capacity constraints, track capacity constraints, and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover yards. The use of platform

[1] Amtrak. *Amtrak National Fact Sheet, FY 2011*; Amtrak Media Relations: June 2012, http://www.amtrak.com/
[2] Amtrak. *Northeast Corridor Infrastructure Master Plan*, June 4, 2010. www.amtrak.com

tracks for layover increases congestion at the terminal and creates operational conflicts for revenue trains, especially during morning and evening peak periods. The problem is exacerbated in inclement weather, when trains run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur.

Regionally there is substantial future growth in passenger rail service anticipated – including 50 percent more Amtrak high speed and intercity service planned as part of Amtrak's long-term vision for the NEC.[3] With anticipated increased service demands for both Amtrak and the MBTA, the lack of layover capacity will become a major constraint and limit the planned growth in rail service at South Station. To meet these needs it is critical that layover facilities provide sufficient capacity to accommodate future service increases and fleet expansions. This would allow for optimal efficiency and flexibility at South Station for revenue operations. The expansion of South Station along with additional layover capacity will reduce operating capacity constraints that currently impact on-time performance for services into the station.

[3] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update*. July 9, 2012. www.amtrak.com

# 2. Existing Conditions

This chapter presents a review of existing conditions, including an inventory of the four existing layover areas and the type of activities conducted at each. Also included is a review of current layover needs for Amtrak and the MBTA compared to the existing capabilities.

As depicted on Figure 2 through Figure 6, there are four existing layover areas that support South Station operations - two are owned by Amtrak (Southampton Street Yard and Front Yard) and two are owned by the MBTA (South Side Service and Inspection Facility and Readville - Yard 2). In general, the purpose of a layover facility is to provide a central location, easily accessible to service and inspection facilities and maintenance facilities, to stage trains and relieve train crews between revenue runs, typically during off-peak hours in the midday period. Service and inspection facilities are used to perform short interval inspections of the equipment as required by the FRA, railroad company policy and manufacturer guidelines, and to perform regular service on the equipment, such as fueling, sanding, sanitary system cleaning, watering, and washing.

## 2.1. Amtrak Layover Facilities

This section describes Amtrak's existing layover areas that support South Station operations, namely the Southampton Street Yard and the Front Yard. Table 1 summarizes the activities that occur at each yard which are illustrated on Figure 3.

**Table 1 Amtrak Layover Facilities**

| | Main Line Access | Train Storage | Vehicle Inspection | Office/Welfare Space | Running Repair | Wheel Truing | Fueling and Sanding | Sanitary and Water | Interior Cleaning | Washing | Equipment and Materials Storage | Material Control | Food Service | Security and Lighting | Parking and Site Circulation | Maintenance-of-Way, Communication & Signals Support Areas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Amtrak's Southampton Street Yard | X | X | X | X | X | X | X | X | X | X[1] | X | X | X | X | X | X |
| Amtrak's Front Yard | X | X | | X | | | | | X | | X | | | | X | X |

[1] Amtrak's wash facility is situated on the wet loop track at Widett Circle, adjacent to Southampton Street Yard.

### 2.1.1. Amtrak's Southampton Street Yard

As illustrated on Figure 3, the Southampton Street Yard is located north of Southampton Street, between the MBTA Old Colony Main Line and the Dorchester Branch. The Southampton Street Yard is owned and operated by Amtrak and serves as the primary train storage and layover facility for Amtrak in Boston. The MBTA has an agreement with Amtrak to store train consists[4] at Southampton Street Yard during daylight hours. The entire yard has an overhead contact system, or catenary, to provide power to electric

[4] A consist is railroad term used to describe the physical makeup of a combination of locomotives and coaches coupled together and operating as one unit.

trains. Of the 16 tracks at Southampton Street Yard, seven are dedicated to shop access for the Amtrak Southampton Street Yard Maintenance Facility, the HSR building and the Service and Inspection building. The remaining nine tracks, of which four are used by Amtrak and five are used by MBTA during the midday period, range from approximately 1,100 feet to 1,500 feet in storage length. Amtrak has access to all yard tracks during the overnight period.

The service functions located at the Southampton Street Yard maintenance facility support all Amtrak operations in metropolitan Boston including the Acela Express, Northeast Regional, Lake Shore Limited, and the Downeaster service trains. Currently, Acela Express and Amtrak Regional trains are serviced in separate on-site buildings, accessible from the seven dedicated shop tracks on the western portion of the property (which include the Amtrak Police, material control department, yardmaster office, hazmat building, engineering building, food service, and waste treatment facility). Although the Downeaster service does not operate into South Station, the Southampton Street Yard is currently the nearest maintenance facility operated by Amtrak and is therefore used to perform maintenance and repairs for that equipment.

The majority of Amtrak's layover needs are for overnight storage, allowing the MBTA to utilize a portion of the yard during the midday hours. The MBTA currently utilizes five tracks located at the yard, tracks 13 through 17, for midday layover of trains. These tracks range from approximately 1,300 feet to 1,500 feet in storage length as measured from clearance point to clearance point. The MBTA's use of these tracks is limited to midday hours only (approximately 10 a.m. to 4 p.m.). Typically, the MBTA utilizes one of these tracks as a passing track and the remaining four tracks for train storage. Although the tracks are not long enough to accommodate two full-length consists (one locomotive with eight-coaches), it is possible to sequence the storage of two trainsets on a single track at the same time given that MBTA train consists currently vary from five coaches to eight coaches in length. Along with several individual Amtrak support buildings, a MBTA Mechanical Department office trailer is located at the site.

The Southampton Street Yard has a direct connection to Amtrak's train wash shed which is located on the wet/dry loop track as illustrated on Figure 4. The wet/dry loop tracks are situated north of Front Yard and west of the MBTA's South Side Service and Inspection facility in an area known as Widett Circle. There is a direct track connection from the Southampton Street Yard which crosses the Dorchester Branch at-grade to both tracks near Widett Circle. The tracks are primarily used by Amtrak to turn trains and to wash trains in the train wash shed.

### 2.1.2. Amtrak's Front Yard

As shown on Figures 3 and 4, Amtrak's Front Yard is located east of the Widett Circle Access Road and north of the Dorchester Branch, between Amtrak's Southampton Street Yard maintenance facility and the wet/dry loop tracks for the Amtrak train wash building. The yard, owned by Amtrak, consists of five parallel stub-ended tracks; it is not equipped with an overhead catenary system. Each track is approximately 575-feet in length and capable of storing consists with six coaches or less.

The yard is currently used for layover of MBTA commuter train consists on three of the tracks. The remaining two tracks are currently used for Amtrak storage of on-track, non-revenue equipment and maintenance-of-way materials. Two modular office trailers and several storage containers are situated at the southwest end of the yard and serve as office space for employees of the MBTA's current commuter rail operator, Massachusetts Bay Commuter Rail (MBCR).

**Figure 3 Amtrak-Owned Layover Facilities**

Figure 3: **Amtrak-Owned Layover Facilities**

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 4 Amtrak's Wet/Dry Loop Tracks**

Figure 4: **Amtrak's Wet/Dry Loop Tracks**

## 2.2. MBTA Layover Facilities

This section describes the MBTA-owned layover areas that support South Station operations: the South Side Service and Inspection facility and Readville - Yard 2. Table 2 summarizes the activities that occur at each yard which are illustrated on Figures 5 and 6.

**Table 2 MBTA Layover Facilities**

| | Main Line Access | Train Storage | Vehicle Inspection | Office/Welfare Space | Running Repair | Wheel Truing | Fueling and Sanding | Sanitary and Water | Interior Cleaning | Washing | Equipment and Materials Storage | Food Service | Security and Lighting | Parking and Site Circulation | Maintenance-of-Way, Communication & Signals Support Areas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MBTA's South Side Service and Inspection | X | | X | X | X | | X | X | X | X | X | | X | X | X |
| MBTA's Readville - Yard 2 | X | X | X | X | X | X | | | X | | X | | X | X | X |

### 2.2.1. MBTA's South Side Service and Inspection Facility

The South Side Service and Inspection facility is owned and operated by the MBTA and is situated adjacent to Widett Circle, between South Station and Amtrak's Southampton Street Yard as shown on Figure 5. The facility consists of four buildings with approximately 57,000 square feet of indoor space, including a two-track running maintenance facility used to perform service, inspections, and running repair functions to MBTA's south side train consists. Two additional outdoor tracks, each approximately 785-feet long, parallel the South Side Service and Inspection facility building to the east. These are primarily used for locomotive fueling and train servicing.

The MBTA's South Side Service and Inspection facility building has provisions for adding essential supplies (fuel, sand, lubricants, and coolant) to a locomotive as well as sanitary dumping stations and water for coaches equipped with restrooms. The South Side Service and Inspection facility maintenance shop is equipped with an overhead crane, single axle drop table, car washer, and ground power stations. Two 250,000-gallon above ground storage tanks (with containment) are available for use for the bulk storage of diesel fuel. Other buildings include a parts warehouse, a fuel pump house and the Engineering Department's maintenance building. As referenced in the *MBTA Commuter Rail Infrastructure Needs Assessment Study*,[5] inspection and fueling records indicate that each consist is fueled daily and the maintenance/service activity at the MBTA's Service and Inspection building is four to six consists each day. At this rate, each of the MBTA's 38 consists would return to the facility once every two weeks for service.

[5] Massachusetts Bay Transportation Authority. *Commuter Rail Infrastructure Needs Assessment Study*, April 30, 2004.

### 2.2.2. MBTA's Readville - Yard 2

Shown in Figure 6, the MBTA's Readville - Yard 2 is located in the Readville section of Boston in the northeast quadrant of the intersection of the NEC and the MBTA Dorchester Branch. It is approximately 8.8 track-miles south of South Station. Roadway access is via Wolcott Court. Readville - Yard 2 currently serves as a layover yard and maintenance repair facility. This is the largest layover yard used by the MBTA for their south side service. The layover yard has a total of 12 tracks, ranging from 594 feet to 1,129 feet in length, with capacity to accommodate two six-coach consists, one seven-coach consist, and nine eight-coach consists. It is possible to store up to 10 eight-coach consists at Readville - Yard 2, however, the functionality of two shorter adjacent yard tracks is operationally limited while the $10^{th}$ consist is laying over.

The yard features paved roads to access all tracks as well as auxiliary ground power for plug-ins. The equipment shop, while not a full service and inspection facility, provides many functions. Three tracks of two coach-lengths each are housed within the shop and provide a pit track for undercarriage/brake inspection, wheel truing, cab signal installations, equipment modifications, and special projects. The shop also features caged storage for spare parts and a car mover capable of shuttling cars within the shop area. Numerous modular buildings and storage containers are present at this site as well as laydown areas for track materials.

**Figure 5 MBTA's South Side Service and Inspection Facility**

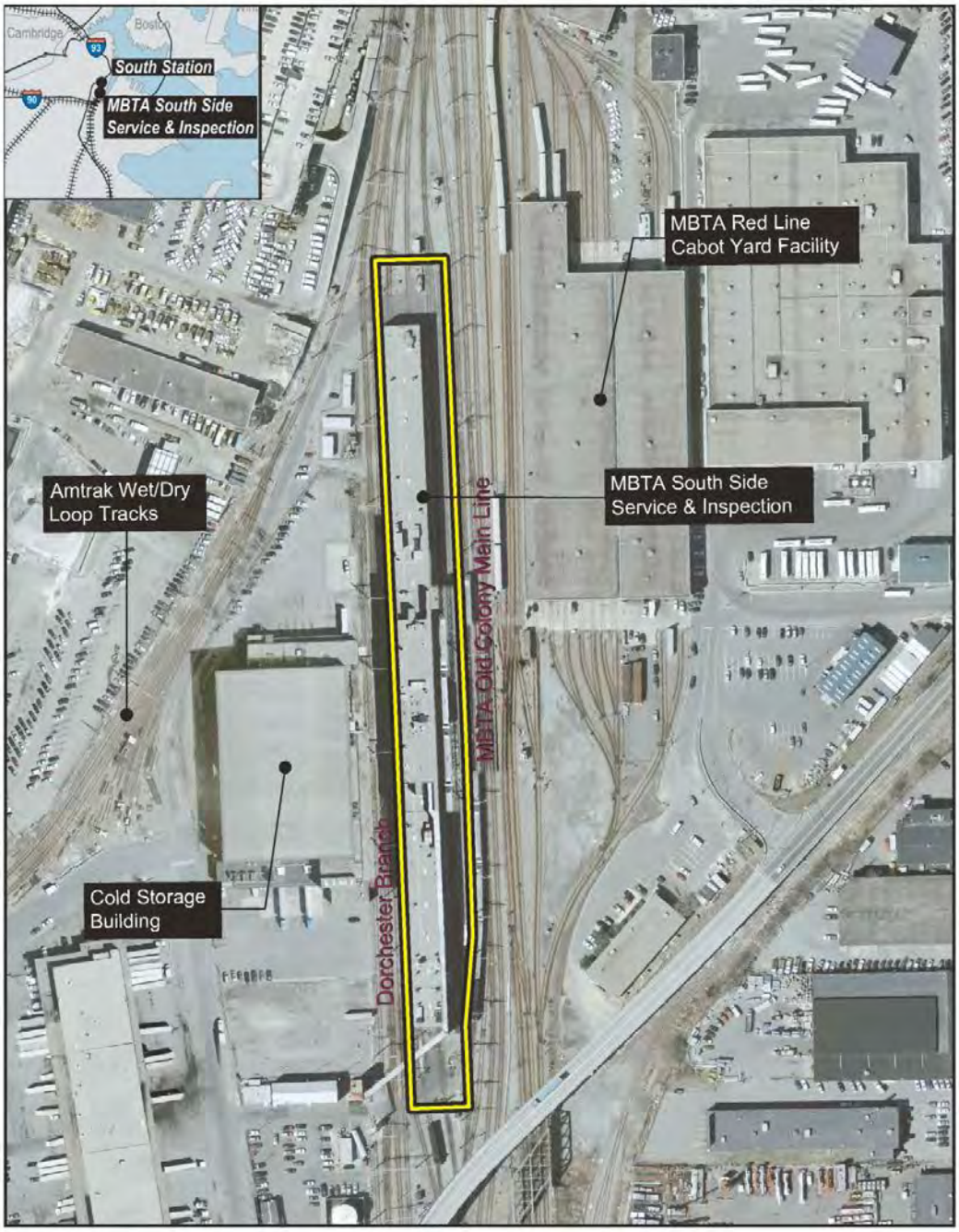


Figure 5: **MBTA's South Side Service and Inspection Facility**

**Figure 6 MBTA's Readville - Yard 2**

Figure 6: **MBTA's Readville - Yard 2**

## 2.3. Existing Layover Need

This section describes the existing layover needs necessary to support Amtrak's and the MBTA's current operations at South Station.

### 2.3.1. Amtrak

Table 3 summarizes the existing layover requirements for Amtrak during the midday and overnight. All of Amtrak's layover needs are accommodated at the Southampton Street Yard layover. As discussed previously, Amtrak's Front Yard is not used by Amtrak for layover functions. It is used for MBTA layover and Amtrak non-revenue, rail-bound equipment storage as well as Amtrak maintenance-of-way material storage needs. Based on information received from Amtrak, the peak layover need for Amtrak's South Station service is eight consists during the midday and 13 consists overnight.

**Table 3 Existing Amtrak Layover Requirements**

| Southampton Street Layover Yard | Midday Layover Requirement (Number of Consists) | Overnight Layover Requirement (Number of Consists) |
|---|---|---|
| Southampton Street Yard | 4 | 9 |
| Southampton Service and Inspection Building | 2 | 2 |
| Southampton HSR Building | 2 | 2 |
| **Total** | **8** | **13** |

### 2.3.2. MBTA

Table 4 summarizes the present fleet composition of the MBTA trains serving South Station. Based on the existing equipment cycle provided by the MBTA,[6] a total of 38 consists are currently required to support its daily South Station commuter rail operations during a typical weekday. Of these 38 consists, 28 are in layover status during a typical midday period. These consists are a mixture of single and bi-level passenger coaches, ranging from five to eight coaches in length. Based on the current MBTA equipment cycle, the earliest trains to enter layover do so around 7:30 a.m. with the last leaving by 5:00 p.m. The shortest layover duration at a layover yard is approximately one hour and 34 minutes and the longest is approximately 10 hours and 25 minutes, with the average layover duration at approximately five hours and 30 minutes.

Each of the 38 consists operate throughout the day and have a "deadheading", or non-revenue period, of more than one hour when it moves to a layover yard. Trains requiring layover for less than one hour typically remain at South Station until the next revenue run. To ensure that a standard level of service is maintained on all lines, not all consists layover simultaneously – the layover periods are staggered. Figure 7 shows that the current weekday peak demand for layover space occurs between 1:00 p.m. and 2:00 p.m. where 28 of the 38 consists are in a layover status, or approximately 74 percent of the entire south side fleet. The midday layover needs of the MBTA complement the overnight layover needs of Amtrak allowing joint usage of the limited space at Southampton Street Yard.

[6] Massachusetts Bay Transportation Authority. *FY2011-FY2025 Commuter Rail Fleet Management Plan*, January 2011.

**Table 4 MBTA's Existing (2012) South Side Fleet Make-up**

| Consist Size | Number of Consists |
|---|---|
| 8 cars | 1 |
| 7 cars | 5 |
| 6 cars | 30 |
| 5 cars | 2 |
| **Total** | **38** |

**Figure 7 MBTA's Existing Weekday Layover Consists Requirement**

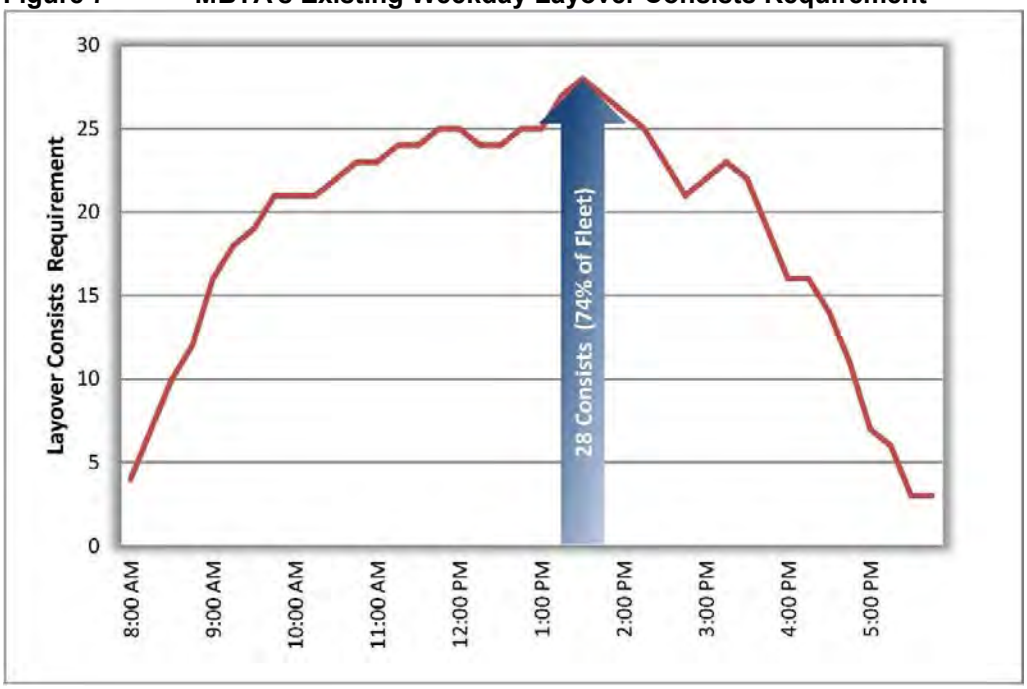


**Table 5 MBTA's Capacity at Existing Layover Yards**

| Layover Yard | Maximum Storage Capacity | |
|---|---|---|
| | Number of Consists | Consist lengths |
| Amtrak's Southampton Street Yard | 8 | 4 consists with 7 cars<br>4 consists with 8 cars |
| Amtrak's Front Yard | 3 | 3 consists with 6 cars |
| MBTA's South Side Service and Inspection | 4 | 4 consists with 8 cars |
| MBTA's Readville - Yard 2 | 10 [a] | 10 consists of variable lengths |
| **Total Capacity** | **25** | |
| **Total Peak Layover Demand (midday)** | **28** | |
| **Capacity vs. Demand** | **-3** | |

[a] Of the 12 yard tracks at Readville, it is possible to store up to 10, eight-coach consists. However, the functionality of two shorter adjacent yard tracks is limited while the 10th consist is laying over. The MBTA currently stores 10 consists of variable lengths at Readville - Yard 2.

As summarized in Table 5, the layover capacity for the MBTA's south side commuter rail service area is inadequate under existing conditions – there is a shortfall of three consists. This shortfall results in restrictive scheduling of revenue and non-revenue trains in and out of South Station. In addition to trains that layover at one of the four facilities, due to the combination of layover capacity constraints, track capacity constraints, and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover facilities. While not ideal, this is an accepted practice for layover times of less than one hour. However, given the layover yard capacity constraints, layover times at South Station can be greater than one hour. The use of the platform tracks as a layover site increases congestion at the terminal and creates operational conflicts, especially during morning and evening peak periods. This situation is exacerbated in inclement weather, when trains run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur. In order to expand service at South Station, the track use needs to be optimized along with added layover capabilities to improve the efficiency of the transition from active service to layover status.

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# 3. Future Conditions

Chapter 3 presents the future layover needs necessary to support Amtrak and MBTA operations at South Station projected to the year 2025 and 2040. This assessment includes several assumptions regarding layover yard utilization as well as projected service increases for Amtrak and the MBTA.

## 3.1. 2025 Layover Forecast Assumptions

The following assumptions were made to forecast Amtrak's and the MBTA's layover needs for 2025:

- It is anticipated that Amtrak will be able to meet its 2025 overnight layover needs within its layover facilities. This assumption is based on the following information from *The Amtrak Vision for the Northeast Corridor – 2012 Update:*[7]

  > Amtrak plans to replace the equipment currently operating on the NEC with new express equipment capable of operating at maximum speeds of 160 miles per hour (mph) in 2020. Amtrak is in the process of procuring new trainsets to support this service. The new trainsets could be longer than the current Acela express units, thereby requiring more track length for layover. With the procurement of new express trainset equipment, Amtrak plans to modify their Service and Inspection facilities (including those at Southampton Street Yard) to accommodate potentially longer consist lengths. Completion of the expanded Service and Inspection facilities is anticipated in 2015 to support the new NextGen HSR trainsets anticipated to be serving South Station by 2020.

- The MBTA's agreement with Amtrak allows the use of the Southampton Street Yard for midday layover needs. For the purposes of this analysis, it is assumed that the MBTA will continue to utilize Southampton Street Yard for midday train storage.
- For the purposes of this analysis, it is assumed that the MBTA will continue to use Amtrak's Front Yard, Readville - Yard 2, and the South Side Service and Inspection for layover in the same capacity as today.
- For purposes of this analysis, it is assumed that, by 2025, the MBTA will be using a four-track layover yard on an MBTA easement at Beacon Park Yard for layover of 12 consists.
- Trains laying over for less than one hour will remain at South Station and the percentage of the MBTA's south side fleet that will be in a layover status (74 percent) will not change from existing to future 2025 conditions.
- The MBTA's planned growth of 20 additional consists in 2025 and projected fleet mix is based on the MBTA's *FY2011-FY2025 Commuter Rail Fleet Management Plan (CRFMP).*[8]
- MBTA service will increase by one peak period round trip for each line (excluding Old Colony Railroad, which will have no peak increase).

[7] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update.* July 9, 2012. www.amtrak.com
[8] *FY2011-FY2025 Commuter Rail Fleet Management Plan*, Massachusetts Bay Transportation Authority, January 2011.

## 3.2. 2025 Layover Forecast

Based on the 2025 layover forecast assumptions, and in accordance with the MBTA's CRFMP, approximately 58 MBTA consists (comprised of 58 locomotives and 340 coaches) will be operating on the South Side by 2025. Table 6 summarizes the MBTA's projected fleet size compared to the existing fleet size.

**Table 6 MBTA's 2025 South Side Fleet Make-up**

| Consist Size | Existing 2012 Number of Consists | Projected 2025 Number of Consists |
|---|---|---|
| 8 cars | 1 | 14 |
| 7 cars | 5 | -- |
| 6 cars | 30 | 20 |
| 5 cars | 2 | 12 |
| 4 cars | -- | 12 |
| **Total** | **38** | **58** |

**Table 7 MBTA's 2025 Layover Capacity vs. Demand**

| | Existing 2012 | Projected 2025 |
|---|---|---|
| Number of Consists Needed to Support Service | 38 | 58 |
| Peak Layover Demand (Midday) | 28 | 43[a] |
| Layover Capacity | 25 | 37 |
| **Capacity vs. Demand** | **-3** | **-6** |

[a] The projected peak layover demand for 2025 is based on the assumption that the percentage of consists requiring layover (74 percent) would remain constant into the future.

**Figure 8 MBTA's 2025 Layover Peak Consists Requirement**

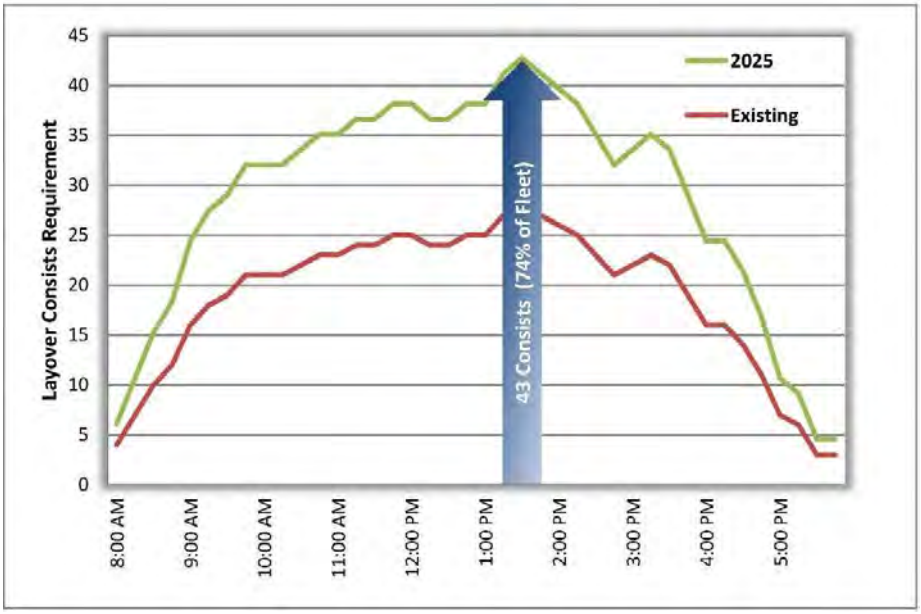


Table 7 summarizes the peak layover demand compared to capacity for existing conditions and 2025 conditions. In 2025, approximately 43 of the MBTA's 58 consists (approximately 74 percent) are projected to be in layover during the midday, which is also illustrated on Figure 8. With the addition of Beacon Park Yard, the layover capacity in 2025 is estimated to be 37 consists. In 2025, it is estimated that the MBTA would need additional layover capacity to accommodate six more train consists than can be currently accommodated at existing areas.

## 3.3. 2040 Layover Forecast Assumptions

The following assumptions were made to forecast Amtrak's and the MBTA's layover needs for 2040:

- Amtrak's *The Amtrak Vision for the Northeast Corridor – 2012 Update*[9] assumes that the NEC NextGen HSR projects will be completed from 2012-2040 to accommodate a maximum speed of 220 mph on a new NextGen HSR alignment. Additionally, the existing NEC will be used to operate the Shore Line Express route, which will provide express NextGen HSR service between Washington, D.C. and New York to meet higher demand along the southern portion of the NEC continuing along the NEC route between New Rochelle, New York and South Station in Boston. In the year 2040, NextGen HSR will be operated using a fleet of 46 new consists.
- In addition to the 46 NextGen HSR consists projected to be operated by Amtrak in 2040, additional equipment and layover needs will be needed to support other Regional service lines utilizing South Station as a terminal facility, including potential revival of the Massachusetts Inland Route connecting Boston, Framingham, Worcester, and Springfield. As part of the new Downeaster Route to Brunswick, Maine that started in November 2012, Amtrak is planning for potential construction of a new layover yard in Brunswick, which would be anticipated to handle some of the maintenance functions currently being performed at the Southampton Street Yard. Other potential future expansion plans for Amtrak Intercity Passenger Rail include restoration of service between North Station in Boston to Manchester/Concord, New Hampshire as well as other outlying destinations north of Boston.[10] Specific details of Amtrak's 2040 layover needs and service and inspection requirements (including track length and support facilities) are not yet known, but it is assumed that Amtrak will need layover space beyond what is currently available.
- By 2040, it is assumed that all MBTA consists will be eight bi-level coaches and one locomotive. For the purposes of this analysis, it is assumed that the MBTA will continue to accommodate its future midday train storage needs at Southampton Street Yard, however, the use of eight-car consists by the MBTA will reduce capacity from eight consists to four consists at this location.
- By 2040, the track lengths at Amtrak's Front Yard will not be able to accommodate the expanded MBTA eight coach and one locomotive consists.
- The MBTA will continue to use Readville - Yard 2 and the South Side Service and Inspection facility as layover sites in the same capacity as today.
- The MBTA will continue to use its easement at Beacon Park Yard for layover of 12 consists.
- Trains laying up less than one hour will remain in South Station.
- The number of consists anticipated for the MBTA commuter rail service in the year 2040 was calculated using the historic growth from 1990 through 2010 (an approximate 0.9 percent increase per year) and the planned growth projected by the MBTA from their CRFMP.

[9] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update.* July 9, 2012. www.amtrak.com
[10] Amtrak. *Northeast Corridor Infrastructure Master Plan*, June 4, 2010. www.amtrak.com

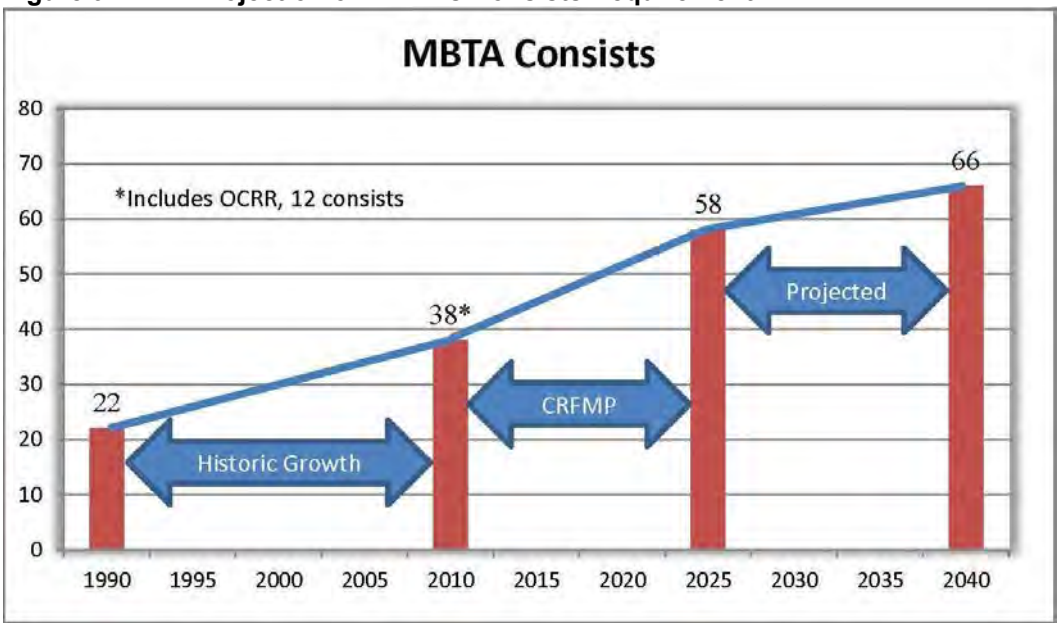
- To accommodate projected ridership demand, it is assumed that all MBTA commuter rail train consists will be expanded to eight bi-level coaches powered by a single locomotive to maximize seat utilization. Given the magnitude of changes required for consists of nine or more coaches, and the considerable capacity increase of the projected eight bi-level coach consists, consists longer than eight cars have not been assumed in this analysis. Based on the operating parameters of the existing equipment fleet, potential expansion to nine or more passenger coaches per train would require providing a second locomotive to each train consist in order to provide adequate acceleration. Additionally, existing station platforms and other support facilities would need to be substantially modified to accommodate consists longer than eight coaches and one locomotive.

## 3.4. 2040 Layover Forecast

Figure 9 illustrates the historic growth, planned growth, and projected growth from 2025 to 2040 needed to meet the MBTA's anticipated ridership demand on its south side. Of the MBTA's 66 consists projected in 2040, a total of 49 (approximately 74 percent) will require simultaneous layover during the midday period as shown on Figure 10.

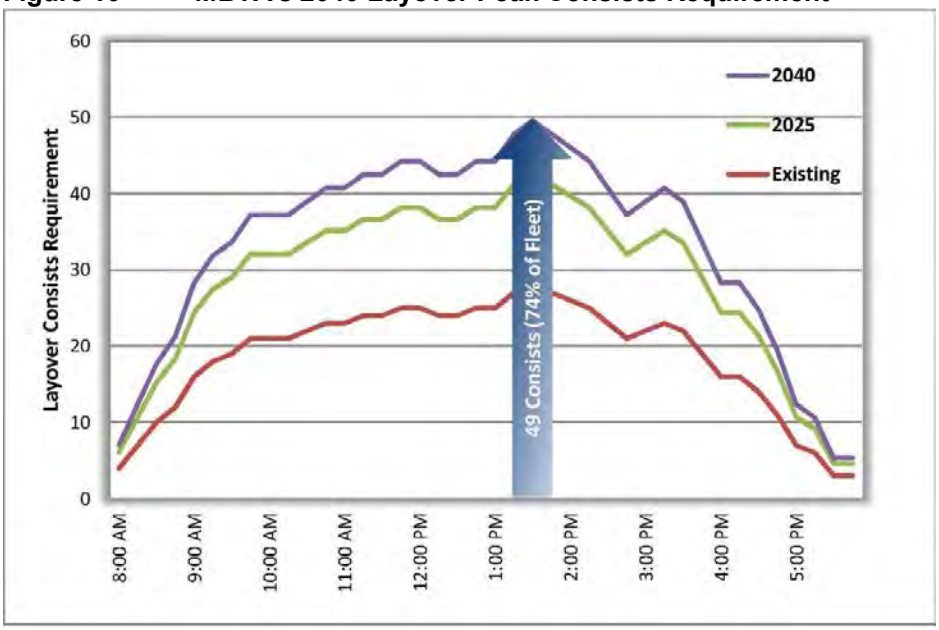
In order to accommodate a fleet of eight bi-level coaches and a single locomotive, all layover yards will need to be configured with minimum clear-track lengths of at least 760-feet. Therefore, the three tracks located at Amtrak's Front Yard will not be long enough to accommodate the MBTA's future eight-coach consists. The layover capacity currently used by the MBTA at Amtrak's Southampton Street Yard will be reduced to four consists.

**Figure 9 Projection of MBTA's Consists Requirement**




CRFMP = MBTA's Commuter Rail Fleet Management Plan
OCRR = Old Colony Railroad
* Includes service expansion of 12 consists for MBTA Old Colony Commuter Rail Line

**Figure 10 MBTA's 2040 Layover Peak Consists Requirement**




As summarized in Table 8, existing facilities will have the capacity to store only 30 of the 49 train consist spaces needed by 2040. This is seven consists fewer than the 37 available in 2025 due to the fact that the longer consists needed by 2040 will no longer be able to be accommodated at Front Yard and the reduced capacity at Southampton Street Yard. In 2040, given the increasing service demands from Amtrak and the MBTA, a total of 19 MBTA consists will not be accommodated for layover operations during the midday period.

**Table 8 MBTA's 2040 Layover Capacity vs. Demand**

| | Existing (2012) | Projected 2025 | Projected 2040 |
|---|---|---|---|
| Number of Consists Needed to Support Service | 38 | 58 | 66 |
| Peak Layover Demand (Midday) | 28 | 43 [a] | 49 [a] |
| Layover Capacity | 25 | 37 | 30 [b] |
| **Capacity vs. Demand** | **-3** | **-6** | **-19** |

[a] The peak layover demand for 2025 and 2040 is based on the assumption that the percentage of consists requiring layover (74 percent) would remain constant into the future.
[b] Assumes reduced capacity at Southampton Street Yard and Front Yard is not large enough to accommodate MBTA eight-car consists.

## 3.5. Summary of Layover Needs

As ridership and service levels have increased, the existing capacity at MBTA's layover facilities during the mid-day has also been exceeded. The layover capacity for the MBTA's south side commuter rail service area is inadequate under existing conditions: there is a shortfall of three consists. This shortfall results in restrictive scheduling of revenue and non-revenue trains in and out of South Station. In addition to trains that use one of the four layover areas, due to the combination of track and layover capacity constraints, and current operating practices, Amtrak and the MBTA are forced to store trains in the South Station terminal while waiting for slots at the existing south side layover yards. The use of the platform tracks as a layover site increases congestion at the terminal and creates operational conflicts, especially during morning and evening peak periods. This situation is exacerbated in inclement weather, when trains

run behind schedule, when equipment needs to be changed out, or when other issues such as equipment failures occur.

As previously indicated, both Amtrak and the MBTA anticipate substantial future growth in passenger rail service. In its long-term vision for the NEC, Amtrak projects a nearly threefold increase in NEC ridership associated with HSR and intercity service. In its *The Amtrak Vision for the Northeast Corridor – 2012 Update,*[11] Amtrak projects the use of additional consists associated with its NEC NextGen HSR projects to be completed from 2020 to 2040. Amtrak also has stated plans to potentially expand Southampton Street Yard to accommodate its future overnight layover needs. Additional equipment and layover capacity will be needed to support other new regional rail services using South Station as a terminal facility, including revival of the Massachusetts Inland Route connecting Boston, Framingham, Worcester, and Springfield. By 2025, due to planned Amtrak and MBTA service expansions and increased MBTA ridership demand, it is estimated that the MBTA shortfall in layover capacity will be six train consists. By 2040, due to planned ridership growth and reduction of layover capacity at some yards due to increased MBTA consist lengths, it is estimated that the MBTA shortfall in layover capacity will be 19 train consists. Specific details of Amtrak's 2040 layover needs and service and inspection requirements (including track length and support facilities) are not yet known, but it is assumed that Amtrak will need layover space beyond what is currently available.

With anticipated increased service demands for both Amtrak and the MBTA, the lack of layover capacity will become a major constraint and limit the planned growth in rail service at South Station. While both Amtrak and the MBTA are constrained in their ability to store their current fleet of vehicles, MassDOT is also keenly aware of the growing opportunity to provide rail service using different types of vehicle technologies. As part of analyzing layover needs related to the South Station Expansion project, MassDOT will consider the layover and servicing needs of vehicle types beyond those in the current MBTA fleet. To meet the layover needs, it is critical that layover yards provide sufficient capacity to accommodate future service increases and fleet expansions. This will allow for optimal efficiency and flexibility at South Station for revenue operations. The expansion of South Station, along with additional layover capacity, will reduce operating capacity constraints that currently impact on-time performance for service into the station. The MBTA's midday layover needs could complement Amtrak's overnight layover needs, allowing joint usage of future layover space.

[11] Amtrak. *The Amtrak Vision for the Northeast Corridor – 2012 Update*. July 9, 2012. www.amtrak.com

# 4. Identification of Layover Sites

This chapter describes how potential layover sites were identified and provides a description of each of the alternative sites. By reviewing previous plans and studies and working with MassDOT, the MBTA, City of Boston officials, and other project stakeholders, a list of 28 alternative sites was identified and reviewed to address the existing and future layover needs discussed in Chapters 2 and 3.

## 4.1. Layover Site Identification Criteria

Identifying candidate sites for new or expanded layover capabilities required, as an initial step, developing the key project criteria required for rail layover areas. The objective was to consider any reasonable site that could satisfy the site criteria necessary to adequately support railroad operations at South Station. The criteria include:

- Direct or nearly direct access to an existing rail line;
- Adjacent uses compatible with the characteristics of a layover facility, avoiding adjacency with residences, if possible;
- Site size and configuration suitable for the storage of eight car plus one locomotive consists; and
- Proximity to South Station, favoring locations closer to South Station over those farther away.

## 4.2. Candidate Layover Sites

Using the initial set of evaluation criteria, 28 potential sites were identified.

- Alternative 1 – Commuter Rail Maintenance Facility (CRMF)
- Alternative 2 – Beacon Park Yard
- Alternative 3 – Cold Storage
- Alternative 4 – Widett Circle
- Alternative 4A – Foodmart Road
- Alternative 5 – Boston Transportation Department Tow Lot
- Alternative 6 – Cabot Yard Red Line
- Alternative 7 – Cabot Yard Bus Facility
- Alternative 8 – Boston Department of Public Works
- Alternative 9 – Amtrak Southampton Street Service & Inspection
- Alternative 10 – Amtrak Southampton Street Service & Inspection – West
- Alternative 10A – Amtrak Front Yard
- Alternative 11 – Dorchester Avenue
- Alternative 12 – Von Hillern Street
- Alternative 13 – Boston Globe
- Alternative 14 – Freeport Way
- Alternative 15 – Freeport Street

- Alternative 16 – Victory Road
- Alternative 17 – NSTAR
- Alternative 18 – Forest Hills
- Alternative 19 – Lanesville Terrace
- Alternative 20 – Readville - Yard 2
- Alternative 20A – Readville - Yard 5
- Alternative 20B – Readville - Yard 1
- Alternative 21 – Arborway Bus Facility
- Alternative 22 – Arborway MBTA Design & Construction Building
- Alternative 23 – D Street
- Alternative 24 – A Street

These 28 locations are illustrated on Figure 11 and each site is depicted on Figures 12 through 39, provided in Attachment A. The following section provides a general description of each of the sites.

### **Alternative 1 – Commuter Rail Maintenance Facility** (Existing Rail Facility)

Alternative 1, Commuter Rail Maintenance Facility (CRMF), is located in Somerville and is depicted on Figure 12. The majority of the approximately 7.9-acre site is owned by the MBTA. This site is located approximately 6.9 track-miles from South Station with rail access from the MBTA Fitchburg Line via the Grand Junction Running Track (GJRT) and the MBTA Framingham/Worcester Line. The majority of this industrial-zoned site is located at the southern end of the Inner Belt Road industrial park area and currently houses the MBTA's CRMF and layover yard for north side commuter rail service. Primary existing functions for this site include heavy maintenance, service and inspection of railroad equipment, and staging of trains, mostly during the midday period.

### **Alternative 2 – Beacon Park Yard** (Existing Rail Facility in Transition)

Alternative 2, Beacon Park Yard, is located along Cambridge Street in the Allston neighborhood of Boston as shown on Figure 13. This site is located on the MBTA Framingham/Worcester Line approximately 3.8 track-miles from South Station, and is an industrial-zoned site located between the Massachusetts Turnpike Interstate Route 90 (I-90) Allston Toll Plaza and the MBTA Framingham/Worcester Line. This approximately 22.4-acre site has served for many years as a major freight rail yard and intermodal terminal in Boston for CSX Transportation, Inc. (CSXT). Today, the freight and intermodal functions are in transition to be relocated to central Massachusetts in 2013. The entire property is currently owned by Harvard University Beacon Yards LLC, and is encumbered by CSXT's operating rights. Provisions in an agreement with Harvard University include the rights for the MBTA to maintain within a portion of the overall site, among other uses, a double track MBTA main line and a four-track layover/layup yard for trains in active use on an MBTA railroad easement. Through another agreement, MassDOT has an option to acquire an easement over a portion of the overall site adjacent to the MBTA easement for the purpose of developing an intermodal facility for freight to, from or through the Port of Boston. Both areas are subject to existing rights in favor of CSXT that have not been released.

**Figure 11 Alternative Layover Sites - Regional Overview**

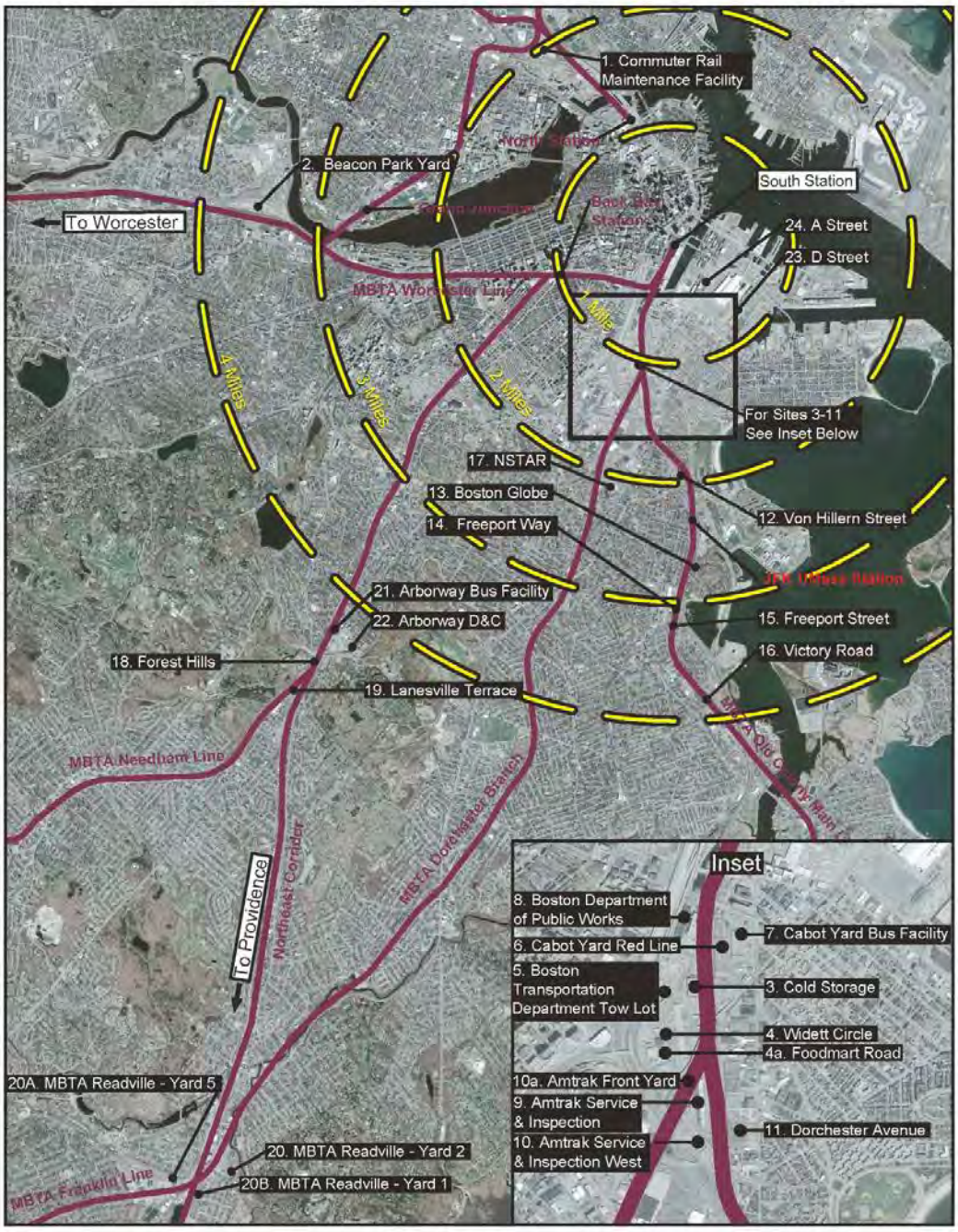



Figure 11: **Alternative Layover Sites**
Regional Overview

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

### **Alternative 3 – Cold Storage** (Private Businesses)

Alternative 3, Cold Storage, is located primarily[12] at 100 Widett Circle in Boston as shown on Figure 14. This site is located on the MBTA Dorchester Branch, approximately 0.9 track-miles from South Station. This approximately 6.6-acre site would require the use of two easements from Amtrak and the New Boston Food Market Development Corporation, and acquisition of property owned by Art Mortgage Borrower Propco 2006-2 LP. This industrial-zoned site is situated within Amtrak's wet/dry loop tracks just north of the New Boston Food Market, and adjacent to the MBTA Dorchester Branch and MBTA's South Side Service and Inspection facility. The location is currently occupied by Americold and Crocker and Winsor Seafoods and existing functions include temperature-controlled food storage and distribution.

### **Alternative 4 – Widett Circle** (Private Businesses)

Alternative 4, Widett Circle, is located primarily at 1 and 2 Foodmart Road in Boston within an industrial-zoned area commonly referred to as Widett Circle, as illustrated on Figure 15. This site is located on the MBTA Dorchester Branch, approximately 1.1 track-miles from South Station. This approximately 18.6-acre site would require property acquisition from The New Boston Food Market Development Corporation. The site would also require property easements from public right-of-way and from adjacent parcels also owned by the New Boston Food Market Development Corporation. The property owned by the New Boston Food Market Development Corporation is made up of approximately 30 units leased to multiple businesses in the food processing, food storage and food logistics industry.

### **Alternative 4A – Foodmart Road** (Private Businesses)

Alternative 4A, Foodmart Road, is located primarily at 1 Foodmart Road in Boston as shown on Figure 16. This site is located on the MBTA Dorchester Branch, approximately 1.1 track-miles from South Station. This industrial-zoned site is situated within Amtrak's wet/dry loop tracks to the east of Foodmart Road. This site is owned by various entities and would require property acquisition from the New Boston Food Market Development Corporation and Art Mortgage Borrower Propco 2006-2 LP and is approximately 17.8-acres in size. This site would also require several easements for use of Amtrak and state property. The property owned by the New Boston Food Market Development Corporation is made up of approximately 20 units leased to multiple businesses in the food processing, food storage and food logistics industry.

### **Alternative 5 – Boston Transportation Department Tow Lot** (City Property)

Alternative 5, Boston Transportation Department (BTD) Tow Lot, is located along Frontage Road in Boston as depicted on Figure 17. This site is located on the MBTA Dorchester Branch, approximately 0.9 track-miles from South Station. The site is primarily owned by the City of Boston for the storage of impounded vehicles from within Boston and is approximately 10.9-acres in size. This industrial-zoned site would also require partial acquisition of adjacent land operated by the Boston Department of Public Works (DPW). Use of this site would also require the use of a substantial portion of the adjacent Boston DPW property which would impact the existing fueling facility, salt pile, single story garages and the ramp to access the west side of the parking garage. This site would also require an easement from Amtrak.

[12] Where noted, some layover alternatives could require easements or partial acquisition of adjacent property.

### **Alternative 6 – Cabot Yard Red Line** (Existing Transit Facility)

Alternative 6, Cabot Yard Red Line, is located primarily at 163 Dorchester Avenue and 71 Foundry Street in Boston as shown on Figure 18. This site is located to the east of the MBTA Old Colony Main Line between the Fort Point Channel and the South Boston Bypass Road, approximately 1.2 track-miles from South Station. The majority of this approximately 18.1-acre site is owned by the MBTA. An easement would also be required within public right-of-way. The site is industrial-zoned to the south of West Fourth Street and is zoned as Restricted Manufacturing with an Interim Planning overlay to the north of West Fourth Street. This location currently houses MBTA's Cabot Yard Red Line facility and the primary existing functions include storage and maintenance of the MBTA's Red Line subway cars.

### **Alternative 7 – Cabot Yard Bus Facility** (Existing Bus Facility)

Alternative 7, Cabot Yard Bus Facility, is located at 163 Dorchester Avenue in Boston as shown on Figure 19. This site is located on the MBTA Old Colony Main Line, approximately 1.73 track-miles from South Station. This site is owned by the MBTA and is approximately 11.9-acres in size. This industrial-zoned site is located to the east of the MBTA Cabot Yard Red Line facility. The location currently houses MBTA's Cabot Yard bus facility and primary existing functions include storage and maintenance of approximately 20 percent of MBTA's active bus fleet.[13]

### **Alternative 8 – Boston Department of Public Works (DPW)** (City Property)

Alternative 8, Boston DPW, is located along Frontage Road in Boston, as shown on Figure 20. This site is located on the MBTA Dorchester Branch, approximately 0.8 track-miles from South Station. The majority of this site is owned by the City of Boston and is approximately 13.2-acres in size. This site would also require use of property owned MassDOT's Highway Department. This industrial-zoned site is located south of West Fourth Street between the MBTA Dorchester Branch and Frontage Road. The location houses Boston's DPW and the northern part of the BTD tow lot. Primary existing functions for this site include parking, DPW offices, DPW vehicle storage and maintenance garages, sand and salt storage, municipal police offices, and storage of impounded vehicles from within Boston.

### **Alternative 9 – Amtrak Southampton Street Service & Inspection** (Existing Rail Facility)

Alternative 9, Amtrak's Southampton Street Service and Inspection Facility, is primarily located at 400 Southampton Street in Boston. This site is located on the MBTA Old Colony Main Line, approximately 1.3 track-miles from South Station. The site is owned by Amtrak and is approximately 7.1-acres in size. As depicted on Figure 21, this industrial-zoned site is located near the intersection of Frontage Road and Southampton Street between the MBTA Dorchester Branch and Old Colony Main Line. This location currently houses Amtrak's Service and Inspection facility, maintenance facility, support functions, layover yard, and an employee parking lot. Primary existing functions for this site include layover and maintenance of Amtrak trains. By agreement with Amtrak, the MBTA currently uses a portion of the yard for midday layover of its commuter rail trains, with Amtrak using the yard mostly during overnight hours.

[13] Massachusetts Bay Transportation Authority. *Ridership and Service Statistics*. Thirteenth Edition. *2010.*

### **Alternative 10 – Amtrak Southampton Street Service & Inspection - West** (Existing Rail Facility)

Alternative 10, Amtrak Southampton Street Service and Inspection Facility - West, is primarily located at 400 Southampton Street in Boston as shown on Figure 22. This site is located on the MBTA Old Colony Main Line approximately 1.8 track-miles from South Station. This site is owned by Amtrak and is approximately 6.8-acres in size. This industrial-zoned site is located near the intersection of Frontage Road and Southampton Street between the MBTA Dorchester Branch and Old Colony Main Line. This location currently houses support buildings for Amtrak's Service and Inspection facility and layover yard and an employee parking lot. Primary existing functions for this site include parking and support for Amtrak operations including offices and crew quarters.

### **Alternative 10A – Front Yard** (Existing Rail Facility)

Alternative 10A, Front Yard, is depicted on Figure 23 and is located on Frontage Road in Boston. This site is located on the MBTA Dorchester Branch approximately 1.3 track-miles from South Station. This site is owned by Amtrak and is approximately 2.5-acres in size. This industrial-zoned site is located to the east of Access Road that leads to Widett Circle and north of the MBTA Dorchester Branch. This location currently houses Amtrak's Front Yard which consists of five existing tracks, each approximately 575-feet in length. Two tracks are currently used by Amtrak for storage of on-track, non-revenue equipment and maintenance-of-way materials, and the remaining three tracks are used by agreement for layover of MBTA commuter rail trains.

### **Alternative 11 – Dorchester Avenue** (Private Businesses)

Alternative 11, Dorchester Avenue, is primarily located along Dorchester Avenue in Boston as depicted on Figure 24. This site is located on the MBTA Old Colony Main Line approximately 2.0 track-miles from South Station. The site consists of 26 parcels owned by multiple commercial businesses and vacant land and is approximately 29.5-acres in size. This industrial-zoned site is located to the west of Dorchester Avenue between South Boston Bypass Road and Southampton Street. The majority of the businesses are related to the construction industry including contractors, equipment, and materials but other uses include warehouses, an auto shop, and gyms.

### **Alternative 12 – Von Hillern Street** (Private Businesses)

Alternative 12, Von Hillern Street, is located along Von Hillern Street in the Dorchester section of Boston as depicted on Figure 25. This site is located on the MBTA Old Colony Main Line and is approximately 2.0 track-miles from South Station. This site consists of multiple parcels and is owned by multiple commercial businesses and is approximately 6.2-acres in size. This manufacturing-zoned site is located on Von Hillern Street, between Interstate Route 93 (I-93) and the MBTA Red Line and just north of Columbia Road. The commercial businesses at this location include a promotional products company, an architectural restoration business, a tile and marble company, and an electrical products company.

### **Alternative 13 – Boston Globe** (Private Businesses)

Alternative 13, Boston Globe, is located at 25 to 135 Morrissey Boulevard in the Dorchester section of Boston as shown on Figure 26. This site is located on the MBTA Old Colony Main Line and is approximately 2.6 track-miles from South Station. The site is owned by Globe Newspaper Company and WHDH TV, among others and is approximately 27.6-acres in size. This commercial and industrial-zoned site is located at the intersection of Morrissey Boulevard and Columbia Road. The location currently houses Boston Globe newspaper company, CW56 TV broadcasting station, a Shaw's supermarket, and various office buildings.

### **Alternative 14 – Freeport Way** (Mixed-Use - City Property and Private Businesses)

Alternative 14, Freeport Way, is located in the area of Freeport Way, Freeport Street, Hoyt Street and Dewar Street in the Dorchester section of Boston as shown on Figure 27. This site is located on the MBTA Old Colony Main Line approximately 3.3 track-miles from South Station. The site is owned by various entities and is approximately 16.2-acres in size. This industrial-zoned site is located near the intersection of Freeport Way and Freeport Street. This site is utilized by the City of Boston and commercial entities for City operations, Boston Edison operations and school bus storage.

### **Alternative 15 – Freeport Street** (Mixed-Use – State/City Property and Private Businesses)

Alternative 15, Freeport Street, is located in the area of Freeport Street in Dorchester as shown on Figure 28. This site is located on the MBTA Old Colony Main Line approximately 3.4 track-miles from South Station. The site is owned by various entities including the MBTA, Massachusetts DPW, the Local 103 International Brotherhood of Electrical Workers (IBEW), IBEW Building Corporation, and Robert N TS Sheinkopf and is approximately 12.9-acres in size. This commercially-zoned site is located at the intersection of Freeport Street and Beach Street. The site is occupied by the MBTA Quality Control Facility, Massachusetts Water Resources Authority (MWRA) Fox Point Combined Sewer Overflow Treatment Facility, Local 103 IBEW and Joint Apprenticeship and Training Committee for the electrical industry.

### **Alternative 16 – Victory Road** (Private Businesses)

Alternative 16, Victory Road, is located at Victory Road and William T Morrissey Boulevard in Dorchester as shown on Figure 29. This site is located on the MBTA Old Colony Main Line approximately 4.1 track-miles from South Station. The site is primarily owned by various commercial entities including Bay Cove Human Services, GPB Real Estate Holdings LLC, and Lambert Ferdinand G Trusts and is approximately 9.3-acres in size. This commercially-zoned site is occupied by various service industry entities such as non-profit health care and real estate firms.

### **Alternative 17 – NSTAR** (Private Businesses)

Alternative 17, NSTAR, is primarily located at 1165 Massachusetts Avenue in Dorchester as shown on Figure 30. This site is located on the MBTA Dorchester Branch approximately 2.1 track-miles from South Station. The majority of this approximately 29.1-acre site is owned by the Boston Edison Company. This industrial-zoned site is located at the intersection of Massachusetts Avenue and Allstate Road. The location currently houses NSTAR corporate operations.

### **Alternative 18 – Forest Hills** (Mixed-Use – State Property and Private Businesses)

Alternative 18, Forest Hills, is located primarily at 3521 and 3593 Washington Street in Jamaica Plain, as shown on Figure 31. This site is located on the NEC approximately 4.8 track-miles from South Station. The site is owned by several entities and occupied partially by the MBTA and is approximately 11.1-acres in size. This industrial-zoned site is located at the intersection of McBride Street and Washington Street. The location currently houses several commercial sites as well as MBTA properties. Primary existing functions for this site include warehousing, small industry and MBTA operations.

### **Alternative 19 – Lanesville Terrace** (Mixed-Use – Residential and Private Businesses)

Alternative 19, Lanesville Terrace, is located along Lanesville Terrace, Washington Street, Arboretum Road, and Lochdale Road in Roslindale, as shown on Figure 32. This site is located on the MBTA Needham Line approximately 5.5 track-miles from South Station. The approximately 10.7-acre site is owned by several individual residential property owners and multiple industrial and commercial service businesses. This site is situated within two zoning subdistricts; local industrial and neighborhood shopping.

### **Alternative 20 – Readville - Yard 2** (Existing Rail Facility)

Alternative 20, Readville - Yard 2, is located primarily at 50 Wolcott Court in Readville, as shown on Figure 33. This site is located on the MBTA Dorchester Branch approximately 8.8 track-miles from South Station. The site, owned by the MBTA, is approximately 17.4-acres in size. This industrial-zoned site is located at the intersection of Wolcott Court and Hyde Park Avenue and is occupied by the MBTA Readville layover facility. Primary existing functions for this site include maintenance and repair operations and layover capacity of up to 12 MBTA commuter rail consists of varying lengths.

### **Alternative 20A – Readville-Yard 5** (Vacant/Former Rail Facility)

Alternative 20A, Readville-Yard 5, is located west of Sprague Street and north of Industrial Drive in the Readville section of Boston, as shown on Figure 34. This site is located on the NEC approximately 9.9 track-miles from South Station. The site, currently owned by the MBTA, has historically served as railroad layover yard by multiple entities and is approximately 16.0-acres in size. Environmental remediation of this industrial-zoned site was completed in 2011. The MBTA has plans at Readville - Yard 5 for use as a solar panel farm in the Dedham portion of the property (outside of this site), and to sell the land in the Boston portion of the site for private redevelopment.

### **Alternative 20B – Readville-Yard 1** (Existing Rail Facility)

Alternative 20B, Readville-Yard 1, is located primarily at 10 Milton Street in the Readville section of Boston, as shown on Figure 35. This site is located on the MBTA Dorchester Branch approximately 9.3 track-miles from South Station. The majority of the approximately 17.2-acre site is owned by the MBTA. This industrial-zoned site is located just south of Readville Station, between the NEC and Prescott Street, and is currently used as a freight rail yard by CSXT. This facility is a double ended yard that connects the NEC with the MBTA Dorchester Branch.

### **Alternative 21 – Arborway Bus Facility** (State Property)

Alternative 21, MBTA Arborway Bus Facility, is located at 3600 Washington Street in Jamaica Plain, as shown on Figure 36. This site is located adjacent to the NEC approximately 5.7 track-miles from South Station. Rail access would be via a tunnel from Forest Hills Station. The site is owned by the MBTA and is approximately 8.3-acres in size. This industrial-zoned site is located on Arborway Street between Washington Street and Stonley Road and currently houses the MBTA Arborway bus facility. Primary existing functions for this site include storage of MBTA buses.

### **Alternative 22 – Arborway MBTA Design and Construction Building** (State Property)

Alternative 22, MBTA Arborway Design and Construction Building, is located at Arborway Street in Jamaica Plain, as shown on Figure 37. This site is located on the NEC approximately 5.8 track-miles from South Station with rail access via Forest Hills Station. This site consists of two parcels owned by the MBTA and the City of Boston and is approximately 18.8-acres in size. This industrial-zoned site is located on Arborway Street between Washington Street and Forest Hills Street. The location currently houses MBTA offices and City of Boston DPW yard and garage and primary existing functions include business and engineering administration as well as material and equipment storage.

### **Alternative 23 – D Street** (Private Businesses)

Alternative 23, D Street, is located along B Street, D Street and E Street in Boston, as shown on Figure 38. This site is approximately 2.4 track-miles from South Station, located off of the Boston Terminal Running Track, which connects to the MBTA Old Colony Main Line. The approximately 10.9-acre site is owned by multiple commercial entities. This industrial-zoned site is located at the intersection of Cypher Street and D Street. Existing functions for this site include a private investment firm and a commercial printing service.

### **Alternative 24 – A Street** (Mixed-Use – State Property and Private Businesses)

Alternative 24, A Street, is located along the South Boston Bypass Road in Boston as shown on Figure 39. This site is approximately 2.3 track-miles from South Station, located on the Boston Terminal Running Track, which connects to the MBTA Old Colony Main Line. The approximately 14.7-acre site consists of multiple private businesses and state-owned property. Owners include Nicholas J Contos, the Massachusetts Convention Center Authority, the USPS, the Commonwealth of Massachusetts and MassDOT. This restricted manufacturing-zoned (with planned development area designation) site is located at the intersection of A Street and West First Street. Primary existing functions for this site are USPS operations, the South Boston Bypass Road, and parking.

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# 5. Screening of Layover Sites

A two-tier screening assessment was conducted to refine the initial list of 28 layover sites to a set of potential locations for further analysis and conceptual design. The first tier involved a "fatal flaw" screening based on three key criteria including site suitability, railroad operations, and site access. The second tier involved a more detailed comparison of candidate sites based on factors such as consistency with zoning, distance from South Station, site topography, environmental impacts, layover yard and main line operations, and capital improvement requirements. For the second tier screening, a conceptual plan was prepared for each potential site. This analysis avoided residential acquisitions and relocations to the greatest extent possible. This analysis also minimized acquisitions and relocations of private businesses when other options may be available. At the end of this screening process, a number of sites were identified for further evaluation as part of the environmental review process.

## 5.1. Tier 1 Screening

Once the initial candidate sites were identified, the next step involved conducting a Tier 1 screening. The goal of the Tier 1 screening was to evaluate the ability of the alternatives to meet the overarching transportation and program objectives established for the project and eliminate sites that were deemed to have fatal flaws. As a result of this initial screening, sites were either eliminated from further consideration or advanced to the Tier 2 screening for more detailed analysis and evaluation against an expanded set of evaluation criteria.

### 5.1.1. Tier 1 Screening Criteria

The Tier 1 screening criteria includes:

- **Site suitability** – Sites that would require extensive or complicated acquisitions and relocations, and sites already programmed for other uses were eliminated from further consideration. Acquisition of residential property was avoided to the greatest extent possible. Acquisition of private businesses was minimized when other options may be available.
- **Railroad operations** – Capacity along main lines, running tracks and yards were considered when evaluating the practicability of each site under the railroad operations criterion. Main line, running track and yard track capacity should be able to accommodate existing and proposed revenue operations as well as non-revenue moves to and from a layover area.
- **Site access** – Each site must be able to reasonably access a railroad main line to provide the most efficient operation of train movements between South Station and the layover. Infrastructure constraints, including issues with topography and physical barriers were evaluated under this criterion.

Any site determined to not satisfy all three criteria were eliminated from further consideration.

### 5.1.2. Tier 1 Screening Analysis

All 28 alternative sites were evaluated for their ability to meet the Tier 1 evaluation criteria: site suitability, railroad operations, and site access. Those sites that did not meet these criteria were eliminated from further review and were not advanced into the Tier 2 screening process. The following section describes each of the alternatives eliminated, and the reasoning as compared to the Tier 1 evaluation criteria.

### Site Suitability

The following eight alternatives were determined infeasible due to site suitability constraints:

- Alternative 4 – Widett Circle
- Alternative 4A – Foodmart Road
- Alternative 6 – Cabot Yard Red Line
- Alternative 7 – Cabot Yard Bus Facility
- Alternative 8 – Boston Department of Public Works
- Alternative 9 – Amtrak Southampton Street Service & Inspection
- Alternative 20A – Readville – Yard 5
- Alternative 24 – A Street

The site suitability issues associated with each eliminated site are:

- **Alternative 4 – Widett Circle / Alternative 4A – Foodmart Road:** These two sites contain numerous private businesses leasing units from the property owner, New Boston Food Market Development Corporation. Collectively, these businesses, known as The New Boston Food Market, are situated on two parcels of land within a mile of the central business district of Boston and designated for use as outlined under Chapter 121A of the Massachusetts General Laws. Due to complications associated with relocating multiple businesses with special requirements in common (temperature controlled storage, food processing), Chapter 121A development complexities, and the need to be in close proximity to the metropolitan market, these alternatives are not feasible at this time.
- **Alternative 6 – Cabot Yard Red Line / Alternative 7 – Cabot Yard Bus Facility:** Alternatives 6 and 7 require relocation of major transportation support infrastructure. The relocation of Cabot Yard Red Line facility would require a site of similar or better characteristics than the existing site. The site would also need to be situated on or adjacent to the MBTA Red Line corridor and meet the requirements of the MBTA Red Line rapid transit operations. The relocation of Cabot Yard Bus Facility would also be a major undertaking, requiring a centralized location for easy access to a majority of the MBTA bus routes in downtown Boston as well as other program requirements of MBTA Bus operations. Due to the difficulties in relocating either of these existing facilities, it was determined that both sites are not feasible.
- **Alternative 8 – Boston Department of Public Works (DPW):** The Boston DPW facility has recently undergone some rehabilitation work. In addition, this alternative would require reconstruction of an overhead bridge located at West Fourth Street and impact access to the adjacent Tow Lot property. The City plans to continue to use this facility for DPW functions and it would be extremely difficult to relocate in its entirety. Therefore, the DPW site is unavailable for a layover site.
- **Alternative 9 – Amtrak Southampton Street Service & Inspection:** The layover facility at Southampton Street Yard is generally limited to its existing footprint. This yard is bound by the MBTA Red Line Cabot Yard Lead Tracks, MBTA Old Colony Main Line, MBTA Dorchester Branch, Southampton Street and I-93, which restricts the ability to expand capacity at Southampton Street Yard. This site is not available because it would be infeasible and cost prohibitive to impact I-93 and other major existing transportation infrastructure.

- **Alternative 20A – Readville - Yard 5:** The MBTA has recently conducted extensive environmental remediation at Yard 5 by treating and removing contaminated soil from the site. The MBTA has committed the Dedham portion of the site for redevelopment as a solar farm and the Boston portion of the site for sale with the intention of private development. For these reasons, it was determined that the site for a layover site is not appropriate.
- **Alternative 24 – A Street:** Alternative 24 covers an area partially occupied by the South Boston Bypass Road and the West Service Road, both important roadway connections between the Seaport District and I-93. Substantial portions of both roadways would require relocation in order to maximize the use of A Street as a railroad layover site. Relocation of these roadways would sever direct connections to I-90, Congress Street, Haul Road and Seaport Boulevard. Relocation of the South Boston Bypass Road would also potentially cause major impacts to adjacent roadways due to heavy truck traffic. Additionally, the City has identified this area for future redevelopment activities. For these reasons, it was determined that the site for an A Street layover site is not appropriate.

## Railroad Operations

Operational considerations include capacity along main lines, running tracks and yards, which is critical in determining the operational feasibility of a site. Main line, running track and yard track capacity should be able to accommodate existing and proposed revenue operations as well as non-revenue moves to and from the layover. The 28 alternative sites were reviewed for their ability to meet this criterion. From this review, the following seven alternatives were removed from further consideration due to railroad operating constraints and impacts to the system:

- Alternative 10A – Amtrak Front Yard
- Alternative 12 – Von Hillern Street
- Alternative 13 – Boston Globe
- Alternative 14 – Freeport Way
- Alternative 15 – Freeport Street
- Alternative 16 – Victory Road
- Alternative 20B – Readville - Yard 1

The railroad operations issues associated with each eliminated site are described in this section.

- **Alternative 10A – Amtrak Front Yard** – The expansion of tracks at Front Yard was considered, in order to accommodate eight-car consists. However, due to constraints with existing infrastructure (I-93, Bypass Road, Dorchester Branch, etc.), it was determined that expansion of Front Yard to accommodate eight-car consists is cost prohibitive and not practicable for the purpose of this project. Due to the track length constraints in this yard, it will not accommodate the eight-car consists required for future railroad operations and therefore Alternative 10A was eliminated from further consideration.

- **Alternative 12 – Von Hillern Street / Alternative 13 – Boston Globe / Alternative 14 – Freeport Way / Alternative 15 – Freeport Street / Alternative 16 – Victory Road**: With the operational constraints documented in previous studies (as discussed below) and the current volume of trains in both directions on the Old Colony Main Line, this analysis concluded there is no capacity for expansion of rail traffic on this segment of railroad and thus, the alternatives located along the MBTA Old Colony Main Line were eliminated from further consideration.

  There are four major rail corridors that access South Station, which consist of the MBTA Old Colony Main Line, the MBTA Dorchester Branch, the NEC, and the MBTA Worcester Line. The MBTA Dorchester Branch, NEC, and the MBTA Worcester Line have at least two main line tracks. The MBTA Old Colony Main Line, however, is constrained to a single main line track south of Southampton Street. Currently, there are 72 MBTA revenue trains that serve the MBTA Middleborough/Lakeville, Plymouth/Kingston and Greenbush lines operating over this single track main line and are split equally between inbound and outbound trains.

  The capacity of the MBTA Old Colony Main Line has been analyzed as part of several studies in the past. The New Bedford/Fall River Commuter Rail Extension project documented the MBTA Old Colony capacity constraints as part of the DEIR submitted in July, 1999.[14] As part of this study, additional train service was modeled to determine if it was operationally feasible to add more train operations to the MBTA Old Colony Main Line. The analysis showed that with a limited number of additional trains the potential for signal delays would result in gridlock on the entire MBTA Old Colony Main Line. This study concluded that the MBTA Old Colony Railroad's single track segments north of Braintree had insufficient capacity to support the Old Colony services and accommodate any additional trains north of Braintree.

  The April 2004 *MBTA Commuter Rail Infrastructure Needs Assessment Study* (CRINA Report)[15] documented the commuter rail infrastructure and rolling stock investment requirements necessary to support the anticipated ridership and service levels for the MBTA through 2025. The report concluded that in order to increase services on the MBTA Old Colony Lines, substantial infrastructure investments would be necessary including double tracking the main line and expanding outlying layover capacity.

- **Alternative 20B – Readville - Yard 1:** Readville – Yard 1 is currently used as a freight yard by CSXT. Two CSXT local trains originate out of Yard 1 five days a week to serve customers and perform switching duties between Readville and Attleboro. The crews for these two trains report to the CSXT office near the south end of the yard to start and end their shift. The yard tracks are used to stage freight cars, block cars and build trains. Use of this yard for a layover site would severely impact CSXT's ability to conduct freight operations in the area. For this reason, Alternative 20B was determined to be infeasible as a layover site.

[14] Massachusetts Bay Transportation Authority. *Draft Environmental Impact Report*, New Bedford/Fall River Commuter Rail Extension Project. July, 1999.
[15] Massachusetts Bay Transportation Authority. *Final Technical Report*, MBTA Commuter Rail Infrastructure Needs Assessment Study. April, 2004.

### Site Access

Each site must be able to reasonably access a railroad main line to provide the most efficient operation of train movements to and from layover. Infrastructure constraints, including issues with topography and physical barriers, were evaluated under this criterion. The following three alternatives were determined infeasible due to site access constraints:

- Alternative 21 – Arborway Bus Facility
- Alternative 22 – Arborway MBTA Design and Construction Building
- Alternative 23 – D Street

The site access issues associated with each eliminated site are described in this section.

- **Alternative 21 – Arborway Bus Facility / Alternative 22 – Arborway MBTA Design and Construction Building:** Two sites, the MBTA Arborway Bus Facility and MBTA Arborway Design and Construction Building, are northeast of the Forest Hills Station located along the NEC in the Jamaica Plain section of Boston. Rail access to either one of these sites would require a substantial change in elevation, tunneling through an existing station and under three major roadways, substantial construction impacts and potentially very high capital cost. Given the impacts to existing infrastructure and utilities imposed by the construction of these alternatives, these sites were eliminated from further consideration.
- **Alternative 23 – D Street:** Much of the area surrounding the D Street parcel has recently been acquired for the development of an apartment complex and two hotels on two separate sites. In addition, accessing the D Street area would require either a shared-use right-of-way (street running) or a permanent easement or acquisition to re-establish the railroad tracks that once existed parallel to Cypher Street, immediately to the southwest of the site. At least two new grade crossings would be required under the easement/taking option. The street running option would require full-depth reconstruction of Cypher Street and relocation of utilities in the roadway. This option would yield a scenario with public vehicular traffic that would compromise the operationally reliability of accessing the site.

### 5.1.3. Tier 1 Screening Summary

Of the initial list of 28 candidate sites, 18 were eliminated from further consideration based on the Tier 1 screening evaluation. All alternatives were compared to the three Tier 1 evaluation criteria: site suitability, railroad operations, and site access. Those that met the criteria were advanced to the Tier 2 screening. Those that did not meet the Tier 1 criteria were removed from further consideration. The following 18 sites did not meet the basic needs of the project and were dismissed:

- Alternative 4 – Widett Circle (dismissed for site suitability issues)
- Alternative 4A – Foodmart Road (dismissed for site suitability issues)
- Alternative 6 – Cabot Yard Red Line (dismissed for site suitability issues)
- Alternative 7 – Cabot Yard Bus Facility (dismissed for site suitability issues)
- Alternative 8 – Boston Department of Public Works (dismissed for site suitability issues)
- Alternative 9 – Amtrak Southampton Street Service & Inspection (dismissed for site suitability issues)
- Alternative 10A – Amtrak Front Yard (dismissed due to railroad operating constraints)

- Alternative 12 – Von Hillern Street (dismissed due to railroad operating constraints)
- Alternative 13 – Boston Globe (dismissed due to railroad operating constraints)
- Alternative 14 – Freeport Way (dismissed due to railroad operating constraints)
- Alternative 15 – Freeport Street (dismissed due to railroad operating constraints)
- Alternative 16 – Victory Road (dismissed due to railroad operating constraints)
- Alternative 20A – Readville – Yard 5 (dismissed for site suitability issues)
- Alternative 20B – Readville – Yard 1 (dismissed for railroad operations issues)
- Alternative 21 – Arborway Bus Facility (dismissed due to limited site access)
- Alternative 22 – Arborway MBTA Design and Construction Building (dismissed due to limited site access)
- Alternative 23 – D Street (dismissed due to limited site access)
- Alternative 24 – A Street (dismissed for site suitability issues)

Of the 28 sites considered, the following ten locations were carried forward into the Tier 2 evaluation and screening process. These alternatives meet the overall requirements for a layover site and will be evaluated further in the Tier 2 screening.

- Alternative 1 – Commuter Rail Maintenance Facility (CRMF)
- Alternative 2 – Beacon Park Yard
- Alternative 3 – Cold Storage
- Alternative 5 – Boston Transportation Department Tow Lot
- Alternative 10 – Amtrak Southampton Street Service & Inspection – West
- Alternative 11 – Dorchester Avenue
- Alternative 17 – NSTAR
- Alternative 18 – Forest Hills
- Alternative 19 – Lanesville Terrace
- Alternative 20 – Readville - Yard 2

## 5.3. Tier 2 Screening

The Tier 2 screening process included development of more detailed screening criteria by which to evaluate the remaining alternatives. Refinement of each of the remaining 10 alternatives included development of conceptual designs, further evaluation of railroad operating characteristics, and major capital requirements necessary to construct each alternative. The purpose of the Tier 2 screening is to compare each of the sites relative to each other using the evaluation criteria to select potential layover sites. Unlike the Tier 1 analysis, the Tier 2 screening analysis was more detailed and not simply a "pass or fail" evaluation. From this Tier 2 screening process, the sites that best met the objectives and goals of the project were selected to move into the environmental review process.

### 5.3.1. Tier 2 Screening Criteria

The Tier 2 screening evaluation criteria, developed in coordination with interested parties, are described in this section. They are organized into the following six categories and described in the following sections:

A. Consistency with adopted plans and zoning;

B. ability to meet location requirements;

C. railroad operations;

D. environmental impacts;

E. site suitability; and

F. capital improvements.

#### A. Consistency with Adopted Plans and Zoning

This criterion was used to assess each site's consistency with locally adopted plans and zoning. Included is a review of the land use of the site, the zoning classification of each site (given the nature of layover operations, industrial zoning is preferred), and any known planned land use for the site.

#### B. Ability to Meet Location Requirements

This criterion was used to determine the ability of each site to meet location requirements for rail and roadway access. Main line rail access was assessed in terms of whether the site would have direct (no reverse moves) and exclusive access (not sharing with other railroad functions). Direct access less than 200 feet away is preferred and increasing distance to access track is considered less desirable. Any streets that would have to be crossed by the access tracks were identified because they are deemed to be operationally disruptive or could have potential traffic and safety impacts. Another measure was whether the site was already accessible by rail.

While rail access is vital to the layover site, roadway access is also important. Roadway access to a layover site is necessary for staff access, the delivery of supplies and other materials and the removal of trash. The roadway access route should avoid, to the greatest extent possible, routes through residential and other sensitive areas.

Lastly, site characteristics such as topography and potential train storage capacity were considered. A level site is preferred although a site that requires some grading can be acceptable in certain situations. Storage capacity was measured by the number of eight-car trains consists with a single locomotive that could be accommodated at each location.

## C. Railroad Operations

Railroad operations relating to the layover areas were based on a set of four subcriteria including: yard operations, main line impacts, distance to South Station, and travel time to South Station.

Yard operations for layover purposes were based on whether the site would have a single lead track, could accommodate parallel lead tracks, could accommodate a loop track or was accessible from both ends. The purpose of this measure is to place a higher value on sites that would be least likely to disrupt operations in the event that one yard lead is fouled by a failed switch, locomotive or another unexpected event. Having flexibility in accessing and using the site is a desirable quality in a layover site.

The capacity of the main line was considered relative to the layover train capacity of a given site. A smaller site with fewer layover trains would potentially have less of an impact on the main line leading to the layover site, but other conditions could exist that make it undesirable as well. Sites with larger capacity for train storage would demand more train volume on the main line accessing the site, however, a large capacity site may be situated on a main line with inadequate capacity to fully utilize that layover.

Distance to South Station was another measure used to assess the operational characteristics of each site. Generally, the further from South Station a layover site lies, the more time it would take to move trains to and from South Station (deadhead miles), which has cost implications. A location within two miles was considered ideal, one within four miles was considered desirable and sites beyond four miles were considered less desirable and were evaluated on a case-by-case basis in terms of operations.

The final measure of this criterion was the travel time to each layover site, with lower travel times preferred. While the distance from South Station has implications for travel time, there are additional factors that can affect travel time including the speeds on the intervening track. Factors that affect speeds include track geometry and the amount of switching required to access a site. Some sites would require a train to travel past the site and reverse direction to access and exit the site, a situation that is much less desirable than sites that do not require such maneuvers.

## D. Environmental Impacts

For the environmental impact criterion, the preliminary screening measures included whether the site was adjacent to residential areas or other sensitive receptors (schools, nursing homes, hospitals) and whether there were known environmental issues associated with the site. This analysis also assessed whether each site was located in designated environmental justice areas, using data provided by the Commonwealth's Office of Geographic Systems (MassGIS) Environmental Justice Viewer database. While any noise, vibration or visual impacts from sites adjacent to residential areas can be buffered through the use of mitigation (such as berms, walls or intervening space), it is preferable to avoid such proximity. Known environmental issues include any condition that would complicate or even prevent use of the site.

## E. Site Suitability

Site suitability was judged in terms of the nature and number of relocations each site would require. There are a number of situations that could make a site difficult to acquire. While a privately held site could be condemned if necessary, condemnation is not the preferred method of site acquisition but the last available option. Sites already owned by public entities can only be acquired through agreement with the public entity. Similarly, railroad sites, such as those owned by Amtrak or the MBTA, have to be acquired through agreement. If there is substantial reason to believe such an agreement could not be achieved a site would be considered less desirable. The amount of acquisitions required could make the location cost prohibitive as a layover yard.

The final factor in this criterion was the number and type of uses that would have to be relocated to make the site available. Any current usage would have to be relocated under Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs[16] requirements whether the user is a lessor or owner of the site. The fewer the number of current users, the easier a replacement site would be to find. In some cases the current user or users would need a suitable replacement site that could be difficult to find. This could include the need to locate a site with the appropriate zoning, access, or proximity to complementary uses.

### F. Capital Improvements

The major capital improvement (infrastructure) requirements were summarized for each alternative to determine whether certain components would influence the cost of constructing a particular layover site. Items with major cost factors were considered in this section such as major earthwork, major known utility relocations, major track and/or signal improvements, new or modified interlockings, and infrastructure modifications or relocations. Building demolition and site clean-up were also considered under this criterion.

## 5.3.2. Tier 2 Screening Analysis

The purpose of the Tier 2 screening analysis is to evaluate the concepts developed for each of the 10 remaining sites and measure how each site performs when compared to each other. Figures 40 through 49, provided in Attachment B, illustrate the conceptual layout of each site and the capacity of the site as a layover yard. The following sections describe each site.

### Alternative 1 – Commuter Rail Maintenance Facility (CRMF)

Alternative 1, Commuter Rail Maintenance Facility (CRMF), is located primarily in Somerville with smaller portions in Cambridge, and is situated on the south side of the MBTA Fitchburg Line. The conceptual layover design would optimize the use of existing CRMF tracks and/or provide additional tracks parallel to the Fitchburg Line which would allow for storage of up to six consists. This concept is shown in Figure 40 provided in Attachment B. The following section provides details on the Tier 2 screening for Alternative 1.

#### A. Consistency with Adopted Plans and Zoning

The site lies within both Somerville and Cambridge and is subject to different zoning regulations in each city. The Somerville portion of this site is zoned IB, Industrial B, which allows railroad layover functions. The Cambridge portion is zoned as NP PUD-6, North Point District with a Planned Unit Development overlay, which is designated for residential, office and business development. The North Point District zoning code does not allow a railroad layover use. This site is currently being used for parking, material storage and non-revenue rail equipment storage by MBTA.

#### B. Ability to Meet Location Requirements

This site has existing rail access from the MBTA Fitchburg Line via the Grand Junction Running Track (GJRT) and the MBTA Framingham/Worcester Line. Rail access to this site from South Station is neither direct nor exclusive as trains traveling to the layover would be competing with freight operations, north side and south side Amtrak and MBTA revenue trains and other non-revenue moves required by Amtrak and the MBTA. To access the site, trains would be required to traverse six highway-rail at-grade crossings

[16] United States Department of Transportation. 42 United States Code Chapter 61, *Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs*. January 1, 2012. Available at: http://uscode.house.gov/download/pls/42C61.txt

on the GJRT in Cambridge, including several major roads, plus three pedestrian at-grade crossings. Road access would be from Washington Street via Inner Belt Road and Third Avenue. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to this site is approximately 6.9 track-miles. Close to three miles of the route is on the GJRT which is restricted to speeds of 10 mph or less. Additionally, the GJRT is single track, with six at-grade highway crossings and three at-grade pedestrian crossings in Cambridge. This relatively slow running speed, in addition to a reverse move that is required at Beacon Park Yard, contributes to a travel time in excess of 20 minutes each way which is greater than any other site in the Tier 2 screening. The yard operations would include double ended access with ladders; however, there are some railroad operational concerns with this site. There are some main line impacts since non-revenue trains going to CRMF from the south side would be required to travel on main line tracks along the MBTA Framingham/Worcester Line between Boston and Beacon Park Yard and along the MBTA Fitchburg Line between the GJRT and CRMF. Additionally, current infrastructure along the GJRT is not conducive to adding up to 12 trains per day (six in each direction) to this segment of track without substantial improvement to signals and/or track.

### D. Environmental

This site is located in an existing industrial area on the south side of the MBTA Fitchburg Line. A layover site in this location is not anticipated to have an adverse effect on natural resources. Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and polycyclic chlorinated biphenyls (PCBs) among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. According to the Commonwealth's Office of Geographic Information (MassGIS) Environmental Justice viewer,[17] this site is partially located within a designated environmental justice area for minority populations. The proposed NorthPoint mixed-use development site is located directly adjacent to this site to the south. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. Overall, the placement of the layover area in an existing industrial district would not result in any substantial changes to the local visual environment. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This alternative would not require acquisition as the MBTA already owns this land. However, using this part of the property as a layover site would displace its current use of parking, material storage and equipment storage. Expansion of this site is not feasible so these functions would need to be relocated on site.

### F. Capital Improvements

This site would require construction of a new interlocking or extensive modifications to an existing interlocking on the MBTA Fitchburg Line. Other construction activities would include relocating sidings that are currently used to store non-revenue rail-bound equipment as well as relocating employee parking, lay-down areas for maintenance-of-way materials and storage of communication and signal equipment.

[17] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

Currently, the GJRT is non-signaled territory where there are no scheduled revenue passenger trains. However, occasional non-revenue passenger train moves are made over this section of track to transfer railroad equipment between the north side and south side of the rail system in Boston. CSXT has operating rights on the GJRT and uses the line regularly to serve their freight customers. In order to make railroad operations more efficient, substantial track and signal improvements may be warranted along the GJRT between the MBTA Fitchburg Line and the MBTA Framingham/Worcester Line to support increased rail traffic traveling to and from the CRMF.

**Recommendation – Dismiss Alternative 1 from further consideration for the following reasons:**

- **Distance and travel time to layover are substantial;**
- **Reverse move required at Beacon Park to access the new yard;**
- **GJRT is limited to "restricted speed," not exceeding 10mph and has eight existing at-grade crossings including major roads in Cambridge; and**
- **Major infrastructure improvements would be required including extensive modifications to the MBTA Fitchburg Route interlocking and substantial track and signal improvements on the GJRT.**

## Alternative 2 – Beacon Park Yard

Alternative 2, Beacon Park Yard, is located in the Allston section of Boston on the north side of the MBTA Framingham/Worcester Line. The conceptual layover design would provide tracks parallel to the MBTA Framingham/Worcester Line to store up to 30 consists. This concept is shown in Figure 41 provided in Attachment B. The following section provides details on the Tier 2 screening for Alternative 2.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the Boston Redevelopment Authority (BRA) as the Allston Landing South Economic Development Area (EDA). According to Article 51 Section 22 of the Boston Zoning Code "The purpose of this Allston Landing South EDA is to promote industrial and manufacturing uses and to preserve and maintain the existing industrial uses which are vital to the City, State, and regional economy."[18] This site has served for many years as a major freight rail yard and intermodal terminal in Boston for CSXT. Today, the freight and intermodal functions are in transition to be relocated to central Massachusetts in 2013. The entire property is currently owned by Harvard University Beacon Yards LLC, and is encumbered by CSXT's operating rights. As previously described, this site is the location of both an MBTA easement area and an option running in favor of MassDOT, both of which are also encumbered by CSXT's rights. With both the easement and the option area, this site would provide space for 30 consists. A rail freight terminal and accessory railroad storage yard are approved uses without restrictions within the Allston Landing South EDA. A planned commuter rail station west of the yard will have minimal or negligible impacts on the use of this site as a layover yard.

### B. Ability to Meet Location Requirements

The nature of this site as an existing rail facility would simplify the construction of the layover yard. The site has existing rail access via the MBTA Framingham/Worcester Line. Rail access to this site from South Station is direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from an existing driveway at the intersection of Cambridge Street and Lincoln Street. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 3.8 track-miles. Despite the distance to this site and two MBTA stations (Back Bay Station and Yawkey Station) along the route, good main line access and main line track speeds allow trains to access this site in approximately 10 to 15 minutes. While this site has a large potential capacity and double-ended access for operations, there are some railroad operational concerns. By using this site to layover up to 30 consists, the MBTA Framingham/Worcester Line would experience some impacts. Capacity on the main line tracks would be in high demand between the non-revenue moves to and from the yard and revenue trains on the MBTA Framingham/Worcester Line. With the increased volume of trains, schedule changes may be necessary and congestion may become an issue on the main line during peak hours.

[18] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 51 – Allston-Brighton Neighborhood District, Section 22*. November 13, 1991. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article51.pdf

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. Existing residential areas are present to the south of the existing MBTA Framingham/Worcester Line. There is no known planned residential use at or directly adjacent to this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to nearby residential land uses. A layover site in this location is not anticipated to have an adverse effect on natural resources. According to the MassGIS Environmental Justice viewer,[19] this site is located within a designated environmental justice area for minority and low-income populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

The location currently serves as a freight rail yard, bulk transfer facility, intermodal facility, engine facility and provides several other railroad functions. It is assumed for the purposes of this analysis that the MBTA will use its easement area to build the layover infrastructure as soon as the site is available. Up to 12 consists can be accommodated on the MBTA easement. The storage of 12 consists on this easement is considered a "future existing condition," whereby construction has not yet started but it is anticipated that the MBTA easement portion of this site will be used before the start of this project, and will be coordinated with other MassDOT-related needs in the area.

However, in order to accommodate additional consists at this site to meet the existing and future layover need, use of more land beyond the MBTA easement area is necessary. An additional 132-foot wide area, immediately to the north of the MBTA easement area, is the subject of MassDOT's option agreement. MassDOT expects that the area subject to the option would fulfill the land requirement necessary to build tracks for 30 consists. Because the MassDOT option area is reserved for unrelated purposes, additional rights beyond what MassDOT now has would be necessary to accomplish this outcome. Additional rights may also be necessary within the MBTA easement area depending upon the ultimate use and functions decided upon. MassDOT and the MBTA have had preliminary discussions with the property owner and intend to begin negotiations on this issue in the near future.

### F. Capital Improvements

Construction at this site would require demolition of several small railroad support buildings and four larger buildings. Other demolition would include reclaiming salvageable rail and ties and disposal of a large quantity of bituminous and cement concrete as well as scrap rail and ties. Two interlockings on the MBTA Framingham/Worcester Line would require modifications for controlled yard access.

As part of the current agreement between Harvard University and the MBTA, the MBTA would be required to construct a ventilation system, fire protection, heat dissipation, and lighting if Harvard chooses to exercise the air rights/overbuild clause of the agreement. This clause also requires that railroad infrastructure be constructed so as to not preclude the use of surface area for such items as building foundations, building access/egress, vehicle access and utilities.

[19] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

**Recommendation – Advance Alternative 2 for further evaluation and concept refinement.**

- **Existing use of this site as a rail yard would simplify construction;**
- **The MBTA easement agreement already exists;**
- **No property acquisitions are required; and**
- **Topography and current land use are favorable for this site for layover purposes.**

## Alternative 3 – Cold Storage

Alternative 3, Cold Storage, is located in Boston on the west side of the MBTA Dorchester Branch. The conceptual layover design would provide tracks along the east property line of the site to store up to six consists. This concept is shown in Figure 42 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 3.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial, which allows railroad layover functions. The site currently houses a temperature controlled food storage and distribution facility that is use by Americold and Crocker and Winsor Seafoods. The building has an active CSXT-served rail siding with space for six freight cars.

### B. Ability to Meet Location Requirements

This site has existing rail access from the MBTA Dorchester Branch; however, the tracks would need to be reconfigured and expanded to maximize the potential of this parcel as a layover site. Rail access to this site from South Station is direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Frontage Road via Widett Circle and Foodmart Road. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 0.9 track-miles and travel time would be an estimated 5 to 10 minutes. Rail access to the site is direct, but limited to a single yard lead off the MBTA Dorchester Branch, which is not optimal. There are no major main line impacts, given that the site is located a short distance from South Station.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no existing or known planned residential use at or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[20] this site is not located within a designated environmental justice area. Overall, the placement of the layover site in an existing industrial district would not result in any substantial changes to the local visual environment. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This alternative would require an approximately 6.6 acre site, which would involve the full acquisition of 100 Widett Circle, a 4.7 acre parcel that contains the Americold cold storage facility. A portion of 0 West Fourth Street (owned by Amtrak) and a portion of 0 Widett Circle (owned by New Boston Food Market Development Corporation) would also be required. Use of this site would also require the displacement and relocation of Americold plus any businesses that operate at this facility, with specific needs of temperature controlled food storage and freight rail access.

[20] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

### F. Capital Improvements

Construction of this site would include demolition of a large concrete and steel building along with one track and a substantial area of bituminous concrete pavement. Roadway access to the MBTA's Service and Inspection building would need to be maintained or relocated.

**Recommendation – Dismiss Alternative 3 from further consideration for the following reasons:**

- **Acquisition and relocation would be extremely challenging due to relocating private businesses with special requirements (temperature controlled storage, food processing, and need for close proximity to the metropolitan market) and Chapter 121A development complexities.**
- **MassDOT is sensitive to the displacement of private businesses when publicly owned options could be further utilized for layover purposes. It is determined that this site is not feasible.**

## Alternative 5 – BTD Tow Lot

Alternative 5, BTD Tow Lot, is located in Boston, to the west of the MBTA Dorchester Branch. The conceptual layover design would provide tracks to the west of Amtrak's wet/dry loop tracks to store up to 10 consists. This concept is shown in Figure 43 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 5.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial, which allows railroad layover functions. The site is currently used by the BTD as a centrally-located automobile tow lot.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site; however, this site is located just to the west of the MBTA Dorchester Branch and Amtrak's wet/dry loop tracks, so it is possible to make a rail connection. Rail access to this site from South Station would be direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Frontage Road. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 0.9 track-miles and travel time would be an estimated 5 to 10 minutes. Rail access to this site would be via parallel lead tracks off the MBTA Dorchester Branch. This site has no major main line impacts, given that the site is located a short distance from South Station.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present land use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no existing or known planned residential use for or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[21] this site is not located within a designated environmental justice area. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This approximately 10.9-acre site would require acquisition of three full parcels and a portion of an additional parcel owned by the City of Boston. An easement would be required from Amtrak for the use of a portion of property located at 0 West Fourth Street. Use of this site would require displacement and relocation of the BTD tow lot, a city-owned facility that requires a centrally located site. Use of this site would also require a substantial portion of the adjacent Boston DPW property that would impact the existing fueling facility, salt pile, single-story garages and the ramp to access the west side of the parking garage. Due to site constraints, relocation of the parking garage access ramp and site circulation considerations would be required. Additionally, with the displacement of the fueling facility, salt pile, and single story garages, it may not be feasible to relocate these components on site due to the land area required for these functions. Due to the nature of City operations at the DPW, it could be a challenge to

[21] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

separate these functions from the main DPW facility, relocate them to another property within City limits, and still maintain an efficient operation.

### F. Capital Improvements

Construction at this site would include demolition of the BTD tow lot and maintenance building, as well as a fueling station and bulk storage bins located on the Boston DPW site. Extensive modifications or relocation of the ramp accessing the Boston DPW parking garage would be required to accommodate the lead tracks for the layover yard. Relocation of a large single story DPW garage, DPW fueling facility and DPW salt pile would also be required. A new or modified interlocking would be required for controlled rail access to the yard.

**Recommendation – Advance Alternative 5 for further evaluation and concept refinement.**

- **Close and direct rail access to and from South Station and good road access via Frontage Road;**
- **Publicly-owned facility;**
- **Relative to other sites, minimal site work is required to establish this site for layover purposes; and**
- **Topography of this site is favorable for layover purposes.**

## Alternative 10 – Amtrak Southampton Street Service & Inspection - West

Alternative 10, Amtrak Southampton Street Service & Inspection -West, is located in Boston to the west of the MBTA Old Colony Main Line. The conceptual layover design would provide tracks along the northeast side of Frontage Road to store up to nine consists. This concept is shown in Figure 44 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 10.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial, which allows railroad layover functions. The site is currently used by Amtrak and the MBTA for multiple functions related to passenger rail, including offices and crew quarters to support existing layover uses. Amtrak plans to continue to use this site to support its passenger rail equipment so its use as a layover site would not be consistent with the planned use.

### B. Ability to Meet Location Requirements

There is no existing rail access to the site but it is in close proximity to the existing Southampton Street Yard and MBTA Old Colony Main Line. Rail access to this site from South Station would not be direct, as trains would be required to stop and reverse direction to access the site. Additionally, rail access would not be exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Southampton Street via Frontage Road. The topography is favorable at this site for layover purposes.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 1.8 track-miles; however, rail access is a concern for this site. To access the layover yard, trains would have to enter Amtrak's Southampton Street Yard from the MBTA Old Colony Main Line or Dorchester Branch, travel through the yard and then make a reverse move to enter the Southampton Street Service and Inspection - West site through a single yard lead. These moves would impact Amtrak's Southampton Street Yard operations. Despite the close proximity to South Station, the reverse move to enter the layover site increases the transit time to an estimated 10 to 15 minutes, affecting the efficiency of the site. There are no major main line impacts, given that the reverse move is off the main line and that the site is located a short distance from South Station.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no existing or planned residential use at or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[22] this site is located within a designated environmental justice area for low-income and minority populations. It is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

[22] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

**E. Site Suitability**

This approximately 6.8-acre site would require use of approximately 6.4-acres of property at 400 Southampton Street, currently owned by Amtrak. Use of this parcel would require displacement and relocation of multiple facilities that are required to support Amtrak operations. This site also requires four easements for 0.4 acres of property owned by the MBTA or the Commonwealth of Massachusetts.

**F. Capital Improvements**

Construction at this site would require relocation of several of Amtrak's vital railroad support functions, including the demolition of the current structure in which they are housed. Real estate constraints in this area and the need to keep the railroad support functions in close proximity to the existing Southampton Street Yard may necessitate structured parking and office space while reserving surface area for deliveries and bulk storage.

**Recommendation – Dismiss Alternative 10 from further consideration for the following reasons:**

- **Operational impacts to Amtrak's Southampton Street Yard due to access through the existing yard;**
- **Displacement of Amtrak layover support buildings; and**
- **Reverse move required to access the new yard.**

## Alternative 11 – Dorchester Avenue

Alternative 11, Dorchester Avenue, is located in Boston on the east side of the MBTA Old Colony Main Line. The conceptual layover design would provide 26 storage tracks parallel to Dorchester Avenue and the Old Colony Main Line to store up to 38 consists. This concept is shown in Figure 45 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 11.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as I-2, General Industrial. The majority of this site consists of commercial businesses including those related to construction, auto repair, warehouse storage, and personal fitness with some adjacent residential uses. While the current zoning code allows railroad layover functions, existing and planned uses are not consistent with railroad use although a portion of the site has an abandoned rail spur.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site; however, the MBTA Old Colony Main Line runs along the west edge of the site so it would be relatively easy to provide rail connection. Rail access to this site from South Station would not be direct, as trains would be required to stop and reverse direction on a future tail track that this alternative would propose off of the MBTA Old Colony Main Line, in order to gain access the site. Additionally, rail access would not be exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this site. Road access would be from Southampton Street. The topography is favorable at this site for use as a layover site.

### C. Railroad Operations

The distance by rail from South Station to this site is approximately 2.0 track-miles. Rail access to the site would be through a single yard lead off the MBTA Old Colony Main Line, which is not optimal, and a reverse move using a new tail track off the MBTA Old Colony Line would be required to enter or exit the yard. Despite the close proximity to South Station, the reverse move increases the transit time to an estimated 10 to 15 minutes, impacting the efficiency of the site. This site has some main line impacts, with a potential for up to 38 trains laying over at this location, capacity on the main line tracks would be in high demand between the non-revenue moves to and from the yard and revenue trains on the MBTA Old Colony Main Line.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. While there are some residences in close proximity to this site, there is no known planned residential use for or directly adjacent to this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[23] this site is located within a designated environmental justice area for low-income populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this

[23] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

**E. Site Suitability**

This approximately 29.5-acre site would require property acquisition from approximately 24 parcels and three easements on public property. Use of this site would require displacement and relocation of more than 30 commercial businesses. Acquisition of parcels necessary to utilize this site for layover purposes would be a major undertaking.

**F. Capital Improvements**

Construction of this site would require substantial building demolition and site cleanup of all required parcels. Modifications to a nearby interlocking on the MBTA Old Colony Main Line would include the addition of a tail track and reconfiguration of an existing industrial track lead. The tail track would be used to divert trains entering/exiting the layover from the main line so as to not disrupt revenue rail traffic. The Southampton Street overhead bridge would also need to be rebuilt to accommodate the yard lead and tail track.

**Recommendation – Dismiss Alternative 11 from further consideration for the following reasons:**

- **A reverse move is required to access the site and access is via a single yard lead;**
- **Due to the large storage capacity and the location of this site, the volume of trains traveling to and from this site would negatively impact operations on the MBTA Old Colony Main Line;**
- **Close proximity to residential area;**
- **Many commercial businesses would be displaced to accommodate layover at this site; and**
- **Property acquisition is expected to be difficult given the number of parcels required.**

## Alternative 17 – NSTAR

Alternative 17, NSTAR, is located in the Dorchester section of Boston to the east of the MBTA Dorchester Branch. The conceptual layover design would provide storage tracks for up to 18 consists, along the north side of Norfolk Avenue and East Cottage Street. This concept is shown in Figure 46 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 17.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI, a Local Industrial Subdistrict. Currently, the main use of this site is office, warehouse, shops, and material storage for NSTAR. According to Article 65, Section 20 of the Boston Zoning Code "The purpose of the Local Industrial Subdistricts is to encourage the expansion of light manufacturing and research and development uses…within the Dorchester Neighborhood District."[24] Accordingly, current and planned uses are not consistent with railroad use.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site but it is adjacent to the MBTA Dorchester Branch main line tracks, although the site is situated approximately 17 feet lower in elevation than the main line. Rail access to this site from South Station would be direct but not exclusive as trains traveling to layover areas would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover site. Road access would be from Massachusetts Avenue. The topography of the site is flat; however, the elevation drop between the main line tracks and the site is not favorable.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 2.1 track-miles and travel time would be an estimated 5 to 10 minutes. Rail access would be through a single yard lead off of one of the MBTA Dorchester Branch main line tracks, which is not optimal, and an approximately 17-foot drop in grade to the proposed storage track elevation from the main line would be required. The large storage capacity of this site means a heavy volume of additional trains would be traveling on the MBTA Dorchester Branch, creating some impacts to existing rail traffic. To help avoid additional main line impacts from reverse running on Dorchester Branch Track 2 for a long distance, a new crossover on the MBTA Dorchester Branch would be needed.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. There is no known existing or planned residential land use at or directly adjacent to this site. According to the MassGIS Environmental Justice viewer,[25] this site is located within a designated environmental justice area for minority, low-income and English isolation populations. It is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

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[24] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 65 – Dorchester Neighborhood District, Section 20*. July 17, 2002. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article65.PDF

[25] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

**E. Site Suitability**

This approximately 29.1-acre site would require property acquisition of four privately owned parcels and partial acquisition of MBTA and publicly owned property. The NSTAR facility, comprised of a 23.9-acre parcel owned by Boston Edison Co. and a 3.5 acre parcel owned by SG National LLC, makes up the majority of the site. This site would require displacement and relocation of the NSTAR facility and two smaller entities including Norfolk Auto Tech and Norfolk Tap. NSTAR would likely have specific requirements for relocation.

**F. Capital Improvements**

Construction of this site would include demolition of large office and warehouse-type buildings along with several smaller building structures. A substantial amount of earthwork would be required in order to meet the design guidelines for a layover site. Construction of a new interlocking on the MBTA Dorchester Branch would also be required to access the site via rail.

**Recommendation – Dismiss Alternative 17 from further consideration for the following reasons:**

- **Residential land use exists directly adjacent to this site;**
- **The MBTA Dorchester Branch main line is situated at a much higher elevation than the site; and**
- **NSTAR would be a substantial acquisition and relocation of this facility would be extremely challenging.**

## Alternative 18 – Forest Hills

Alternative 18, Forest Hills, is located in the Jamaica Plain section of Boston on the east side of the NEC. The conceptual layover design would provide storage tracks parallel to the NEC to store up to five consists. This concept is shown in Figure 47 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 18.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI, a Local Industrial Subdistrict. Current uses of this site include automobile sales warehouses and the Neighborhood Assistance Corporation of America offices. According to Article 55 Section 18 of the Boston Zoning Code "The purpose of the Local Industrial Subdistricts is to encourage the preservation of the existing manufacturing and industrial base in a manner that is sensitive to and preserves the quality of life of the surrounding neighborhoods."[26] Accordingly, current and planned uses are not consistent with railroad use. Additionally, there are several residences adjacent to this site that may be negatively impacted by a layover site.

### B. Ability to Meet Location Requirements

There is no existing rail access to this site but it is adjacent to the NEC main line tracks. The site is substantially higher in elevation than the main line. Rail access to this site from South Station would be direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Washington Street via McBride Street. The topography of the site is flat; however, the elevation difference between the site and the main line tracks is not favorable. Use of this site may necessitate earthwork to lower the elevation of the entire site closer to the main line elevation.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 4.8 track-miles and travel time would be an estimated 10 to 15 minutes. However, travel times could be higher due to the already congested nature of the NEC and the priority given to revenue trains. Rail access would be through a single yard lead off of the NEC Track 2, which is not optimal because of directional high-speed, main line revenue rail traffic. Also, a substantial incline from the main line to the proposed storage track elevation would be required if the site elevation is not lowered. This site also has major main line impacts, as it would require non-revenue trains to travel reverse direction for approximately four miles between Cove interlocking and the layover yard, passing through Back Bay and Ruggles Stations on the primarily inbound NEC Track 2. This would have profound impacts to the NEC and would be detrimental to both MBTA and Amtrak operations along the entire line.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial land use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. Residential land use exists directly adjacent to this site. No additional residential use is planned for this site or directly adjacent to this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. Noise and/or vibration mitigation measures

[26] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 55 – Jamaica Plan Neighborhood District, Section 18.* September 7, 1993. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article55.PDF

may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[27] this site is located within a designated environmental justice area for minority populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

### E. Site Suitability

This approximately 11.1-acre site would require property acquisition of four full parcels and one partial parcel. The four full parcels (approximately 6.2 acres of the site) are privately owned and would require acquisition. The remaining 4.9 acres of the site would be the partial use of an MBTA owned parcel use for a power substation. Use of this site would require displacement and relocation of multiple businesses including Flanagan & Seaton Motor Car Co. and the Neighborhood Assistance Corporation of America. Acquisition of parcels necessary to utilize this site for a layover site would be a major undertaking.

### F. Capital Improvements

Construction of this site would include demolition of several buildings and a substantial length of concrete retaining wall. A substantial amount of earthwork would be required to accommodate the layover tracks near the same elevation as the adjacent main line tracks. A new interlocking would be required on Track 2 of the NEC.

**Recommendation – Dismiss Alternative 18 from further consideration for the following reasons:**

- **Residential land use exists directly adjacent to this site;**
- **The NEC main line is situated at a much lower elevation than the site; and**
- **The need for reverse running over an extended distance on the primarily inbound NEC Track 2 to enter the yard makes this layover alternative infeasible.**

[27] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

## Alternative 19 – Lanesville Terrace

Alternative 19, Lanesville Terrace, is located in the Roslindale section of Boston on the southeast side of the MBTA Needham Line. The conceptual layover design would provide storage tracks for up to 10 consists parallel to the MBTA Needham Line. This concept is shown in Figure 48 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 19.

The following section describes the results of this alternative in the Tier 2 evaluation.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI, a Local Industrial Subdistrict. This site, although located in Roslindale, for zoning purposes is considered part of the Jamaica Plain Neighborhood District. Some current uses of this site include a self-storage facility, a catering company, an ice cream wholesale and retail business, a vibration isolation equipment manufacturer, cemetery monument manufacturers, and a gas station with food mart, car wash, and oil change facilities. According to Article 55 Section 18 of the Boston Zoning Code "The purpose of the Local Industrial Subdistricts is to encourage the preservation of the existing manufacturing and industrial base in a manner that is sensitive to and preserves the quality of life of the surrounding neighborhoods."[28] Accordingly, current and planned uses are not consistent with railroad use, although the MBTA Orange Line has a small layover yard adjacent to this site. Additionally, there are several residences adjacent to this site that may be negatively impacted.

### B. Ability to Meet Location Requirements

There is no existing rail access to the site but it is adjacent to the MBTA Needham Line main lines tracks. The site is substantially higher in elevation than the main line. Rail access to this site from South Station would be direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with Amtrak and MBTA revenue trains, non-revenue moves required by Amtrak and the MBTA, and occasional freight traffic. There are no at-grade crossings along the route to this layover. Road access would be from Washington Street via Lanesville Terrace. The topography of the site is flat; however, the elevation difference between the site and the main line tracks is not favorable. Use of this site would likely require some widening the MBTA Needham Line tunnel under Washington Street as well as lowering the elevation of part of or the entire site closer to the main line elevation.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 5.5 track-miles and travel time would be an estimated 15 to 20 minutes. Rail access would be through a single yard lead off of the MBTA Needham Line, which is not optimal, and would require a below grade connection from MBTA Forest Hills Station. Additionally, a substantial incline from the main line to the proposed storage track elevation would be required if the site elevation is not dropped, requiring a longer lead track. This site also has main line impacts, given that it requires non-revenue trains to travel on the congested NEC between South Station and the MBTA Forest Hills Station, competing for capacity with revenue MBTA and Amtrak operations. Adding additional trains to the NEC would be detrimental to both MBTA and Amtrak operations along the line. Additionally, priority is typically given to revenue trains, thus layover trains could be sidelined and may experience longer than the estimated travel time range.

[28] City of Boston, Boston Redevelopment Authority. Zoning Code. *Article 55 – Jamaica Plan Neighborhood District, Section 18.* September 7, 1993. Available at: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article55.PDF

**D. Environmental**

Potential soil and groundwater contamination is likely present at this location due to past and present commercial/industrial land use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present in the building materials and/or fixtures that would require demolition at this site. A layover site in this location is not anticipated to have an adverse effect on natural resources. Residential land use exists directly adjacent to this site, however, no additional residential use is planned for this site or directly adjacent to this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[29] this site is located within a designated environmental justice area for minority populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from a proposed layover site at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

**E. Site Suitability**

This approximately 10.7-acre site would require property acquisition of 23 privately owned parcels. This site would also require the use of approximately 1.8 acres of MBTA and publicly owned property. Use of this site would require displacement and relocation of many businesses including Roslindale Self Storage, Gourmet Caterers, Puritan Ice Cream, Kinetic Systems, Davis Monuments, Wellsmere Monumental Works, and Emporium Gas. Full acquisition of 23 parcels would be necessary which would be a major undertaking.

**F. Capital Improvements**

Construction at this site would require demolition of several buildings along with clearing of vegetation. Earthwork would be necessary to accommodate the layover tracks closer to the elevation of the adjacent main line tracks. A new interlocking would be required to gain rail access to the site via the Needham Line. Additionally, the MBTA Needham Line tunnel under Washington Street would need to be widened to accommodate the yard lead tracks.

**Recommendation – Dismiss Alternative 19 from further consideration for the following reasons:**

- **Residential land use exists directly adjacent to this site;**
- **Many existing businesses would be displaced by a layover site at this location;**
- **The MBTA Needham Line main line is situated at a much lower elevation than the site;**
- **The MBTA Needham Line tunnel under Washington Street would need to be widened; and,**
- **Adding trains to the NEC would be detrimental to MBTA and Amtrak operations.**

[29] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

## **Alternative 20 – Readville - Yard 2** (Existing Rail Facility)

Alternative 20, Readville - Yard 2, is located in the Readville section of Boston to the east of the MBTA Dorchester Branch. The conceptual layover design would provide eight additional storage tracks for total storage capacity of up to 18 consists adjacent to the MBTA Dorchester Branch. This concept is shown in Figure 49 provided in Attachment B. The following section describes the Tier 2 screening for Alternative 20.

The following section describes the results of this alternative in the Tier 2 evaluation.

### A. Consistency with Adopted Plans and Zoning

The zoning of this site is identified by the BRA as LI-1, Local Industrial. An accessory railroad storage yard is an allowable use within the LI-1 Subdistrict. The site is currently used by the MBTA primarily as a railroad layover facility. Other uses of the site include the MBTA's rail equipment maintenance shop, welfare facilities for train crews, and railroad material storage. A review of Boston Zoning District Map 12 indicates that the site potentially abuts a Riverfront Protection Overlay District and a single-family residential subdistrict (1F-6000 Subdistrict, at Wolcott Court). The expansion of layover at Readville - Yard 2 would be consistent with the existing industrial use.

### B. Ability to Meet Location Requirements

This site is an existing MBTA layover facility and has existing rail access via the MBTA Dorchester Branch. Rail access to this site from South Station is direct but not exclusive as trains traveling to the layover would need to compete for main line capacity with MBTA revenue trains and occasional freight traffic. There are no at-grade crossings along the route to this layover facility. Road access would be from an existing driveway at the intersection of Wolcott Court and Wolcott Street. The topography is favorable at this site for use as a layover area.

### C. Railroad Operations

The distance by rail from South Station to the site is approximately 8.8 miles and travel time would be an estimated 15 to 20 minutes, which is a significant distance from South Station. Rail access would be via an existing yard lead connection to the MBTA Dorchester Branch at Dana Interlocking. Additional non-revenue movements to and from Readville - Yard 2 on the MBTA Dorchester Branch could impact current revenue operations as well as future service increases.

### D. Environmental

Potential soil and groundwater contamination is likely present at this location due to past and present railroad/industrial use activities. Asbestos containing materials, lead-based paint, mercury, and PCBs among other contaminants may be present at this site. The expansion of layover functions in this location is not anticipated to have an adverse effect on natural resources. There is existing residential use directly adjacent to the southeast of this site. Noise and/or vibration mitigation measures may be required to address any moderate or severe impacts, if any, to adjacent residential land uses. According to the MassGIS Environmental Justice viewer,[30] this site is located within a designated environmental justice area for minority populations. With mitigation (if required), it is anticipated that no disproportionate environmental justice impacts would result from an increase in layover capacity at this location. Additional environmental analyses would be required if this site is selected to advance for further evaluation.

[30] Commonwealth of Massachusetts *Office of Geographic Information* (MassGIS) *Environmental Justice Viewer*. Accessed January 7, 2013 at http://maps.massgis.state.ma.us/map_ol/ej.php

### E. Site Suitability

This approximately 17.4-acre site would use existing MBTA property and no additional property acquisition or relocation would be necessary for the increased layover capacity at this location. Formerly used as a rail yard by predecessor railroads, the topography, shape and size of the site lend itself well for use a layover site. In order to expand this site to allow for construction of additional tracks, some railroad track materials will need to be relocated.

### F. Capital Improvements

Construction of the additional tracks at this site would require slope stabilization or a retaining wall along the bank of the Neponset River at the north end of the yard. No major demolition, clearing or earthwork would be required to build the additional eight tracks at this site.

**Recommendation – Advance Alternative 20 for further evaluation and concept refinement.**

- **While its distance from South Station could pose operational constraints and would increase operating costs, this site is an existing rail facility currently owned by the MBTA;**
- **Relative to other sites, minimal site work is required to increase layover capacity of this site;**
- **No additional property acquisition or relocation required; and**
- **Topography of this site is favorable for layover purposes.**

### 5.3.3. Tier 2 Screening Summary

Of the 10 locations recommended for further evaluation from the Tier 1 screening, seven locations were eliminated in the Tier 2 screening based on the Tier 2 screening evaluation criteria. All alternatives were compared to the six Tier 2 evaluation criteria: consistency with adopted plans and zoning, ability to meet location requirements, railroad operations, environmental impacts, site suitability and capital improvements. Those that best met the criteria will advance to the environmental review process. Those that did not perform well when compared to these criteria were removed from further consideration. Table 9 provides the results of the Tier 2 screening evaluation.

**Table 9 Results of the Tier 2 Screening Evaluation**

| Alternative Site | Tier 2 Screening Criteria | | | | | | Recommendation |
|---|---|---|---|---|---|---|---|
| | A. Consistency with Adopted Plans/Zoning | B. Ability to Meet Location Requirements | C. Railroad Operations | D. Environmental Impacts | E. Site Suitability | F. Capital Improvements Required | |
| 1. Commuter Rail Maintenance Facility | Unfavorable | Neutral | Unfavorable | Neutral | Neutral | Unfavorable | **Dismiss** |
| 2. Beacon Park Yard | Favorable | Favorable | Neutral | Favorable | Favorable | Favorable | **Advance** |
| 3. Cold Storage | Neutral | Favorable | Neutral | Favorable | Unfavorable | Unfavorable | **Dismiss** |
| 5. BTD Tow Lot | Neutral | Favorable | Favorable | Favorable | Unfavorable | Neutral | **Advance** |
| 10. Amtrak Southampton Street Service & Inspection – West | Neutral | Unfavorable | Neutral | Favorable | Unfavorable | Neutral | **Dismiss** |
| 11. Dorchester Avenue | Neutral | Neutral | Neutral | Favorable | Unfavorable | Unfavorable | **Dismiss** |
| 17. NSTAR | Unfavorable | Neutral | Neutral | Neutral | Unfavorable | Unfavorable | **Dismiss** |
| 18. Forest Hills | Unfavorable | Neutral | Unfavorable | Neutral | Neutral | Unfavorable | **Dismiss** |
| 19. Lanesville Terrace | Unfavorable | Neutral | Unfavorable | Neutral | Unfavorable | Unfavorable | **Dismiss** |
| 20. Readville - Yard 2 | Favorable | Neutral | Unfavorable | Favorable | Favorable | Favorable | **Advance** |

The following seven sites will not advance for further consideration:

- Alternative 1 – Commuter Rail Maintenance Facility
- Alternative 3 – Cold Storage; and
- Alternative 10 – Amtrak Southampton Street Service & Inspection – West
- Alternative 11 – Dorchester Avenue
- Alternative 17 – NSTAR
- Alternative 18 – Forest Hills
- Alternative 19 – Lanesville Terrace

The following three sites are recommended to advance for further evaluation and concept refinement during the environmental review process:

- Alternative 2 – Beacon Park Yard
- Alternative 5 – BTD Tow Lot
- Alternative 20 – Readville - Yard 2

## 5.4. Screening Summary

The two-tiered screening process used to assess candidate layover sites followed several steps, as documented in this chapter. The initial, or Tier 1 screening, evaluated the ability of each site to meet the overarching transportation and program objectives for the project using criteria such as ease of land acquisition, effect on operations, and ability to integrate the site into the existing rail and roadway networks. Of the 28 candidate sites, 10 locations were carried forward to the Tier 2 evaluation.

The Tier 2 screening process involved developing conceptual designs, developing preliminary operating plans, and identifying infrastructure requirements. Of the 10 candidate sites from the Tier 1 screening, three locations were identified as having the ability to best meet the needs of the South Station project and are recommended to move forward into the environmental review phase of the project:

- Alternative 2 – Beacon Park Yard
- Alternative 5 – BTD Tow Lot
- Alternative 20 – Readville - Yard 2

The concept plans prepared in the Tier 2 screening determined that no single remaining alternative has the physical space needed to fulfill the entire layover need in the year 2040. This analysis also determined that layover of too many trainsets approaching South Station from one location could cause conflicting railroad operations and create a bottleneck. Thus, the next phase of the layover assessment will include evaluating combinations of the three recommended sites to test how they integrate with the existing four layover sites serving South Station. This involves refining the concept plan for each site and developing rail operations plans to determine the alternative that will best meet the needs of this project.

# 6. Conclusions and Next Steps

The primary goal of this analysis was to identify potential locations for a new layover site or a combination of new sites to resolve inadequate existing and future layover capacity for South Station railroad operations. Of the initial 28 alternatives identified as having potential for layover to serve South Station, the following three sites are recommended for further evaluation in the environmental review phase of the project:

- **Alternative 2 – Beacon Park Yard** (Figures 13 and 41). The Beacon Park Yard site is located along Cambridge Street in the Allston section of Boston between the I-90 Massachusetts Turnpike Allston Toll Plaza and the MBTA Framingham/Worcester Line. This 22.4-acre site is approximately 3.8 track-miles from South Station.
- **Alternative 5 – BTD Tow Lot** (Figures 17 and 43). The BTD Tow Lot site is located along Frontage Road in Boston. The approximately 10.9-acre site is located on the MBTA Dorchester Branch, approximately 0.9 track-mile from South Station.
- **Alternative 20 – Readville - Yard 2** (Figures 33 and 49). The Readville - Yard 2 site is the location of the existing MBTA Readville layover facility located primarily at 50 Wolcott Court in Readville. The approximately 17.4-acre site is located on the MBTA Dorchester Branch, approximately 8.8 track-miles from South Station. While its distance from South Station is less desirable and would increase operating costs, this site is an existing MBTA-owned rail facility and would not require acquisition or relocation of residential property or private businesses.

These three potential layover site locations meet the project's goals and objectives when measured against operational needs, property requirements, potential environmental benefits and impacts, consistency with local planning, and capital improvements. The next phase of analysis, the environmental review process, will thoroughly examine different combinations of the three remaining alternatives that could meet the existing and future layover needs for the South Station expansion. This phase of review and analysis will include the development of:

- Refined conceptual plans;
- A phasing plan that addresses sequencing and timing of the three sites based on operational need;
- Conceptual operating plans;
- Capital, operations and maintenance cost estimates; and
- Identification of potential environmental impacts.

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# Attachment A Tier 1 Alternatives – Figures

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**Figure 12 Commuter Rail Maintenance Facility – Alternative 1**

Figure 12: **Commuter Rail Maintenance Facility**
Alternative 1

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 13 Beacon Park Yard – Alternative 2**

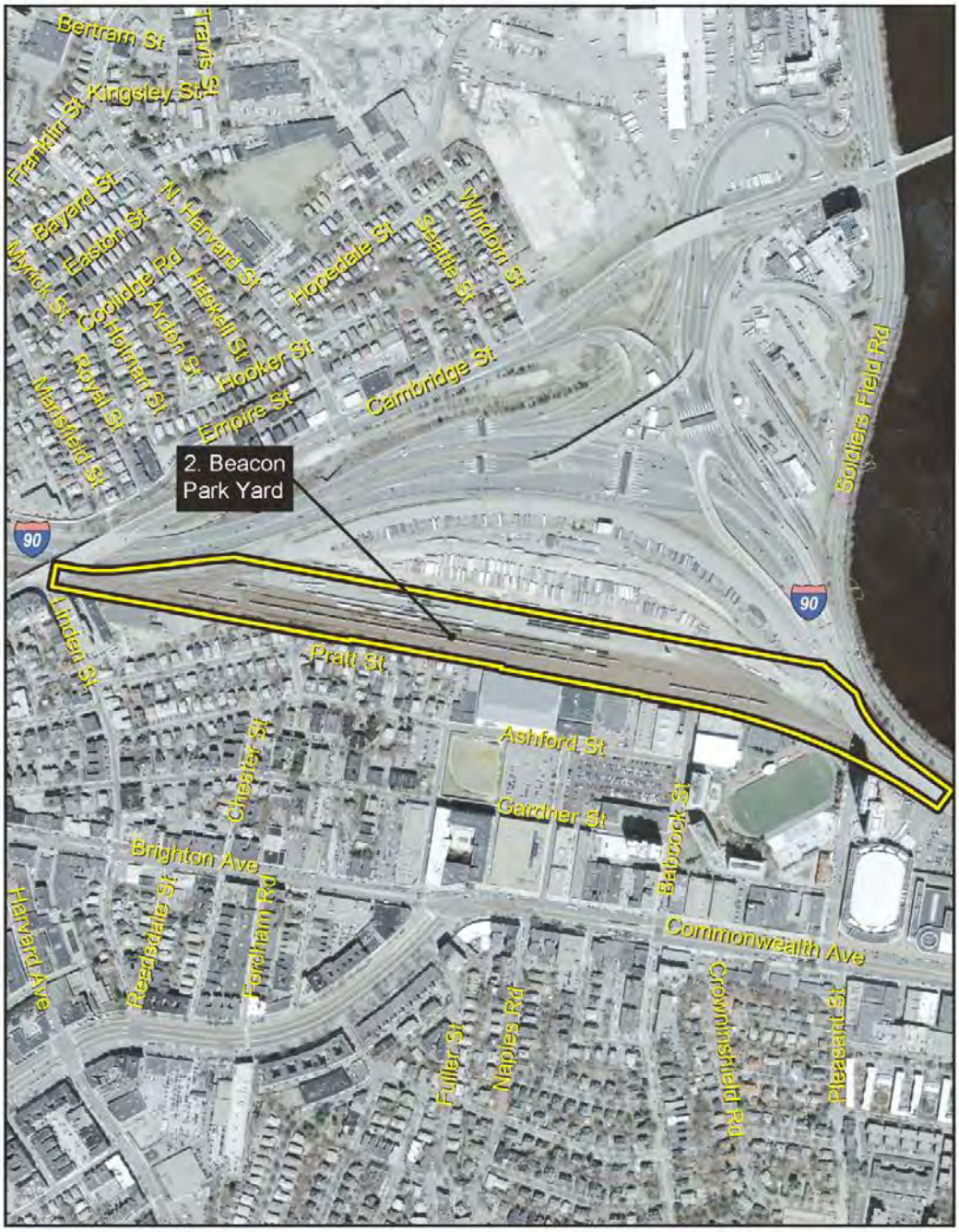


Figure 13: **Beacon Park Yard**
Alternative 2

0 150 300 600 Feet

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 14 Cold Storage – Alternative 3**

Figure 14: **Cold Storage**
Alternative 3

**Figure 15 Widett Circle – Alternative 4**

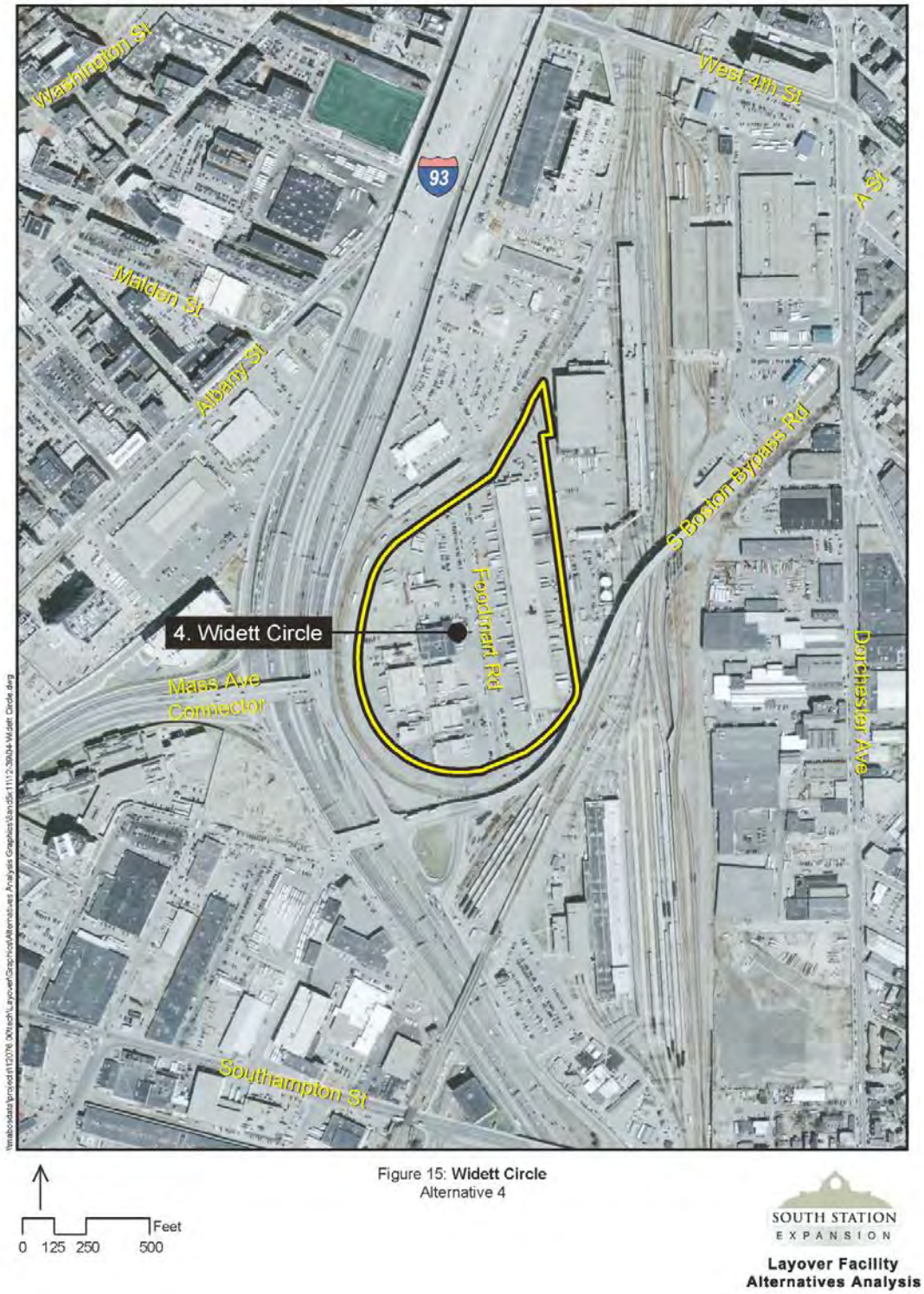

**Figure 16 Foodmart Road – Alternative 4A**

Figure 16: **Foodmart Road**
Alternative 4A

**Figure 17 Boston Transportation Department Tow Lot– Alternative 5**

Figure 17: **Boston Transportation Department Tow Lot**
Alternative 5

**Figure 18 Cabot Yard Red Line – Alternative 6**

**Figure 19 Cabot Yard Bus Facility – Alternative 7**

**Figure 20 Boston Department of Public Works – Alternative 8**

Figure 20: **Boston Department of Public Works**
Alternative 8

**Figure 21 Amtrak Southampton Street Service & Inspection – Alternative 9**

Figure 21: **Amtrak Southampton Street Service & Inspection**
Alternative 9

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 22 Amtrak Southampton Street Service & Inspection - West – Alternative 10**

Figure 22: **Amtrak Southampton Street Service & Inspection-West**
Alternative 10

**Figure 23 Amtrak Front Yard – Alternative 10A**

Figure 23: **Amtrak Front Yard**
Alternative 10A

**Figure 24 Dorchester Avenue – Alternative 11**

Figure 24: **Dorchester Avenue**
Alternative 11

**Figure 25 Von Hillern Street – Alternative 12**

Figure 25: **Von Hillern Street**
Alternative 12

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 26 Boston Globe – Alternative 13**

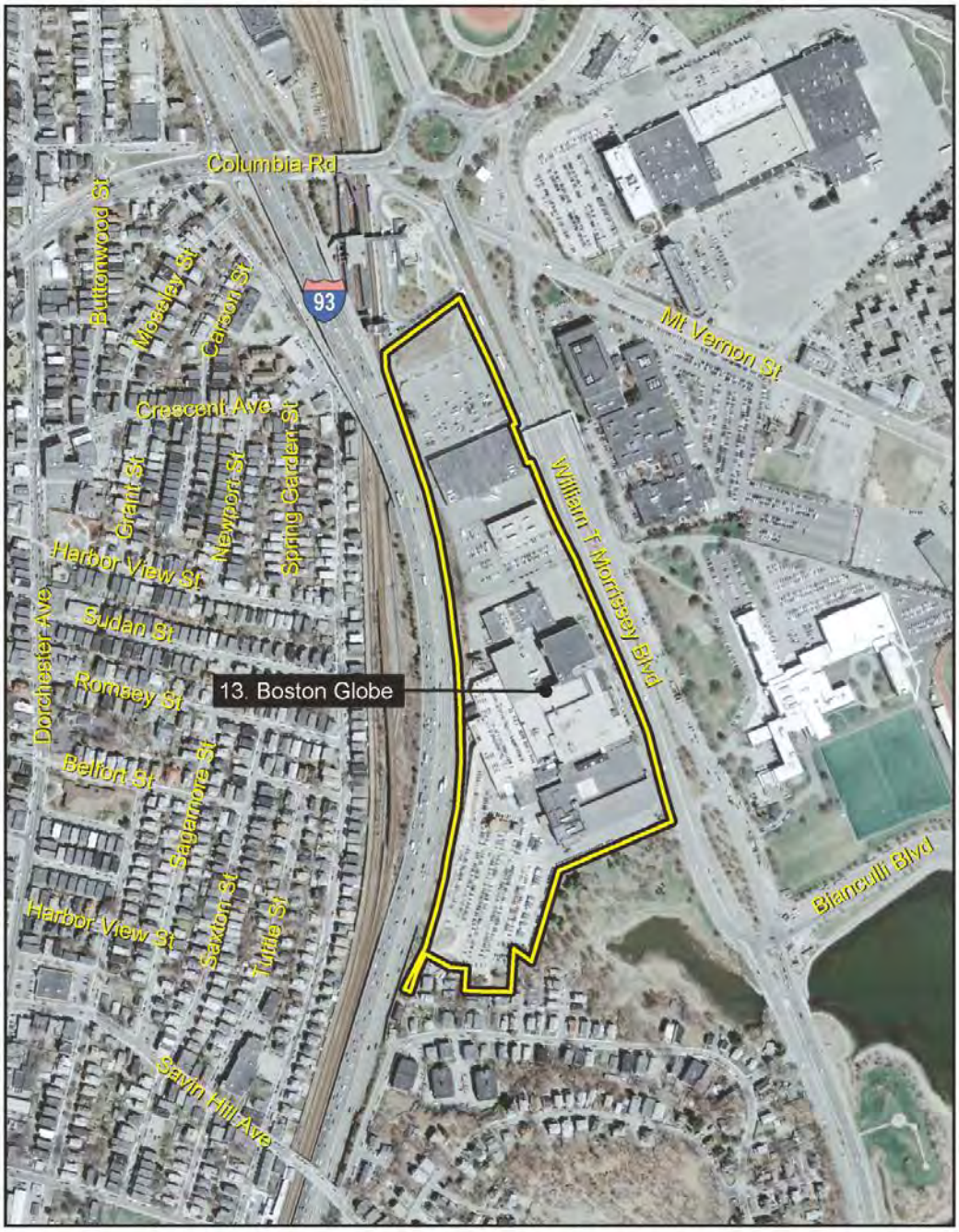


Figure 26: **Boston Globe**
Alternative 13

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 27 Freeport Way – Alternative 14**

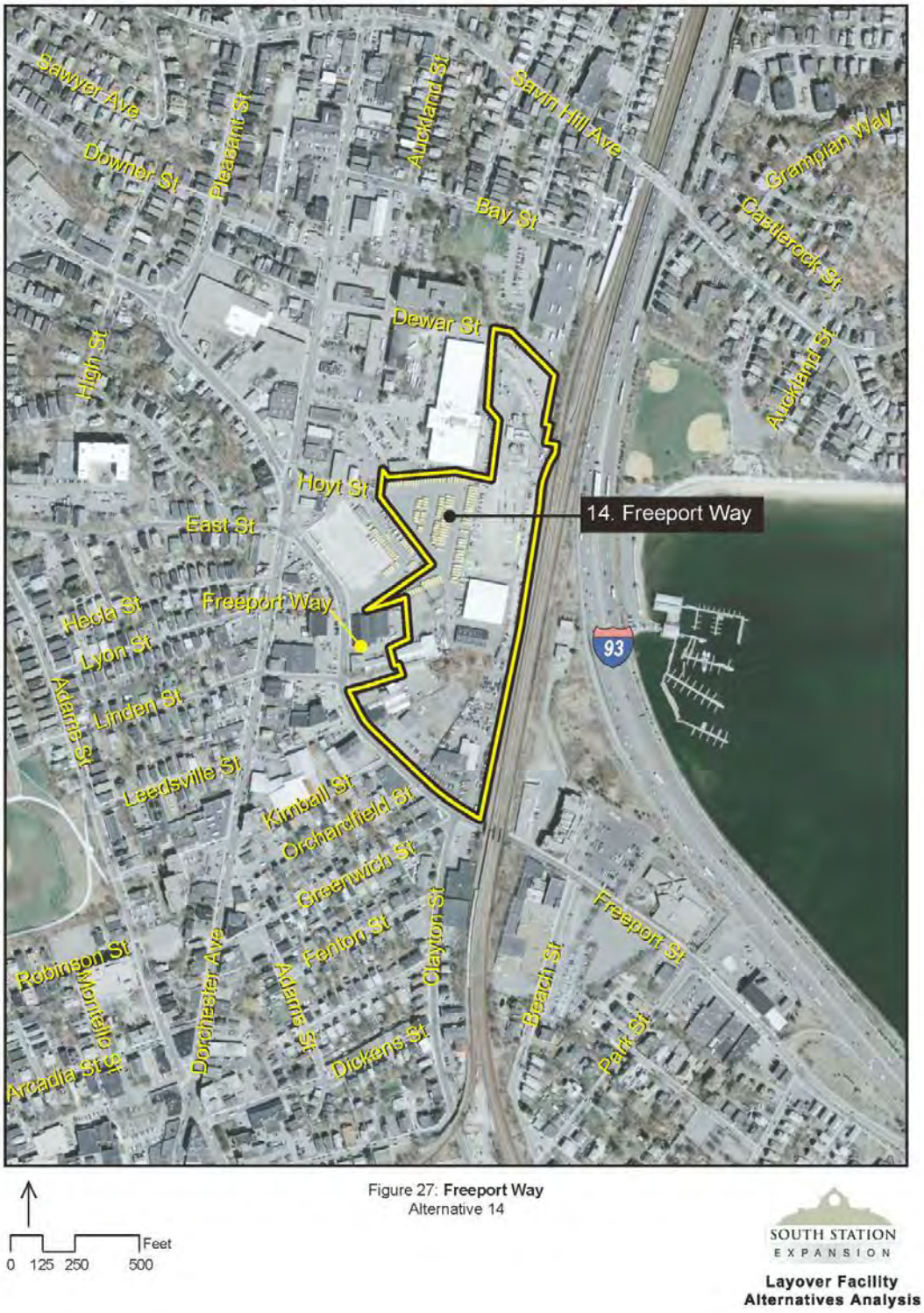

**Figure 28 Freeport Street – Alternative 15**

Figure 28: **Freeport Street**
Alternative 15

**Figure 29 Victory Road – Alternative 16**

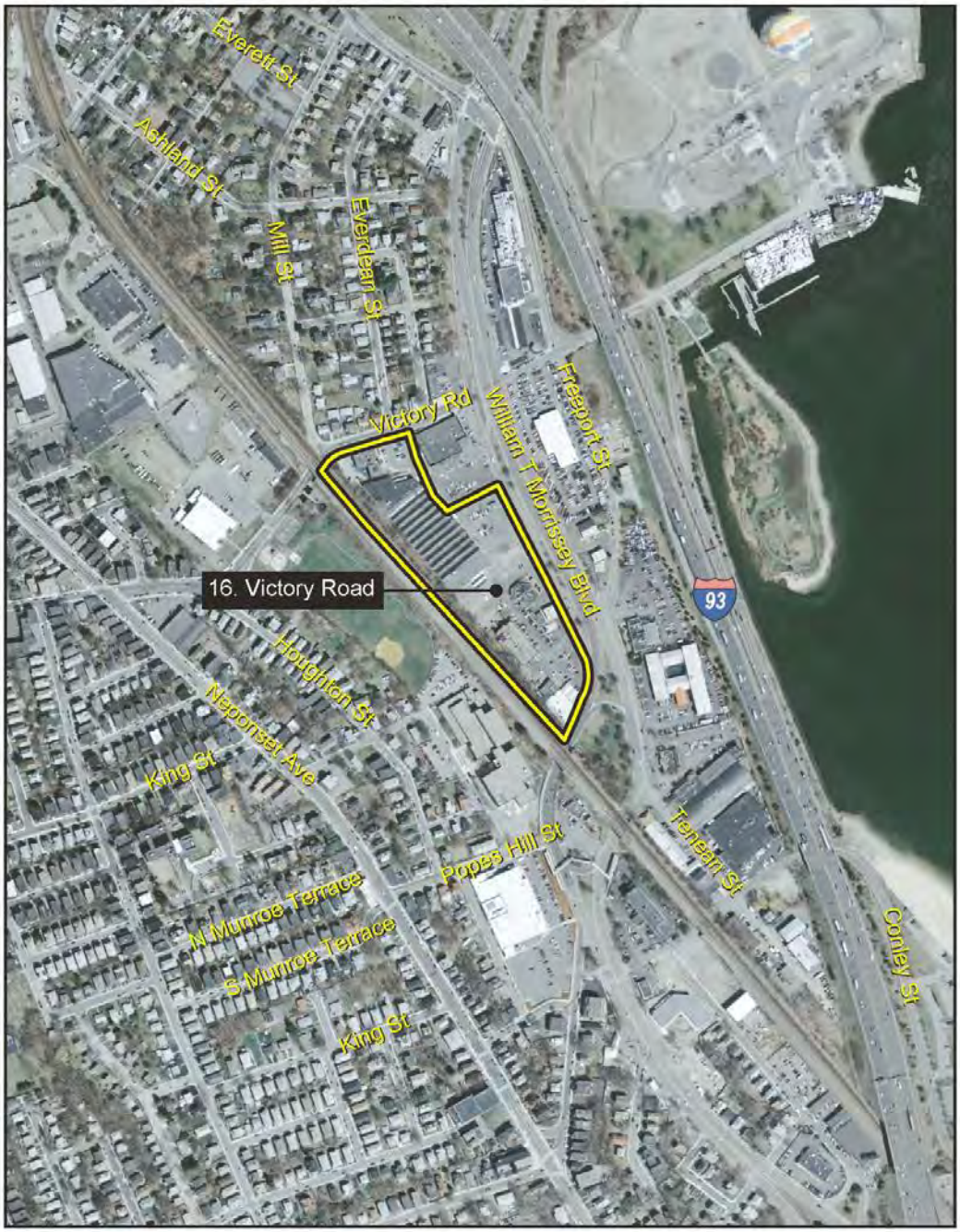


Figure 29: **Victory Road**
Alternative 16

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 30 NSTAR – Alternative 17**

Figure 30: **NSTAR**
Alternative 17

0 125 250 500 Feet

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 31 Forest Hills – Alternative 18**

Figure 31: **Forest Hills**
Alternative 18

**Figure 32 Lanesville Terrace – Alternative 19**

Figure 32: **Lanesville Terrace**
Alternative 19

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 33 Readville - Yard 2 – Alternative 20**

Figure 33: **Readville-Yard 2**
Alternative 20

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 34 Readville - Yard 5 – Alternative 20A**

Figure 34: **Readville-Yard 5**
Alternative 20A

**Figure 35 Readville - Yard 1 – Alternative 20B**

Figure 35: **Readville-Yard 1**
Alternative 20B

**Figure 36 Arborway Bus Facility – Alternative 21**

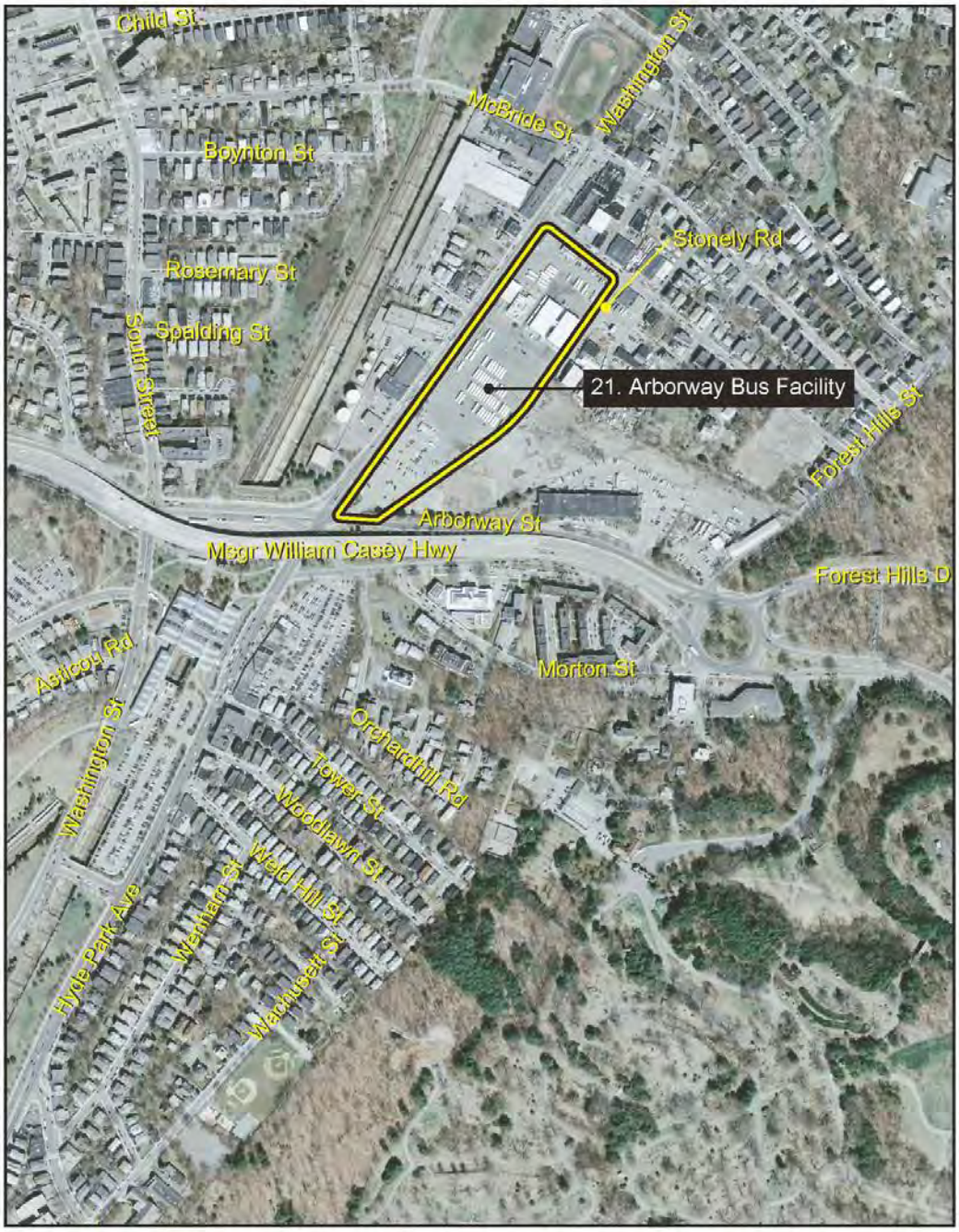


Figure 36: **Arborway Bus Facility**
Alternative 21

**Figure 37 Arborway MBTA Design & Construction Building – Alternative 22**

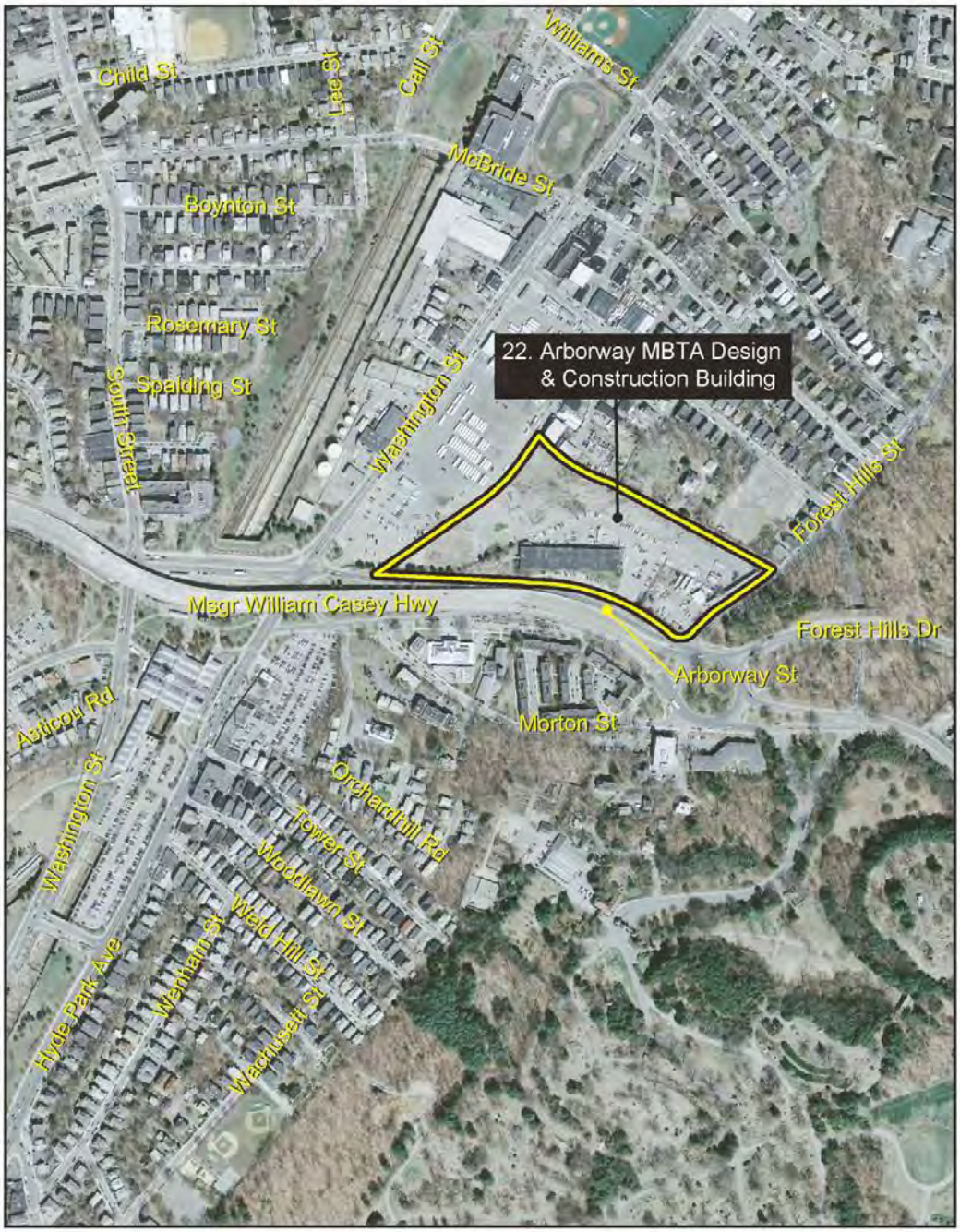


Figure 37: **Arborway MBTA Design & Construction Building**
Alternative 22

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 38 D Street – Alternative 23**

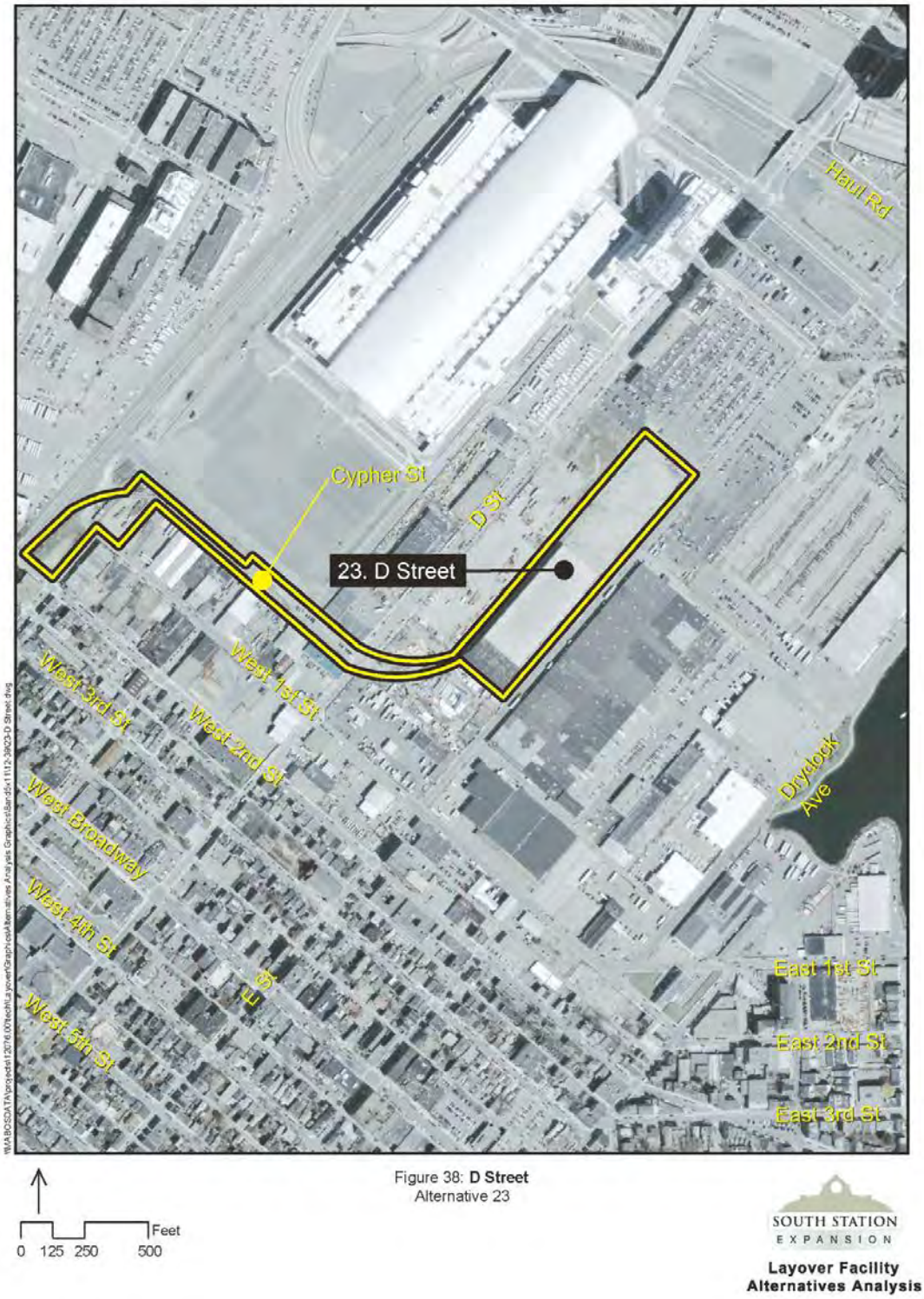

**Figure 39 A Street – Alternative 24**

# Attachment B Tier 2 Alternatives - Figures

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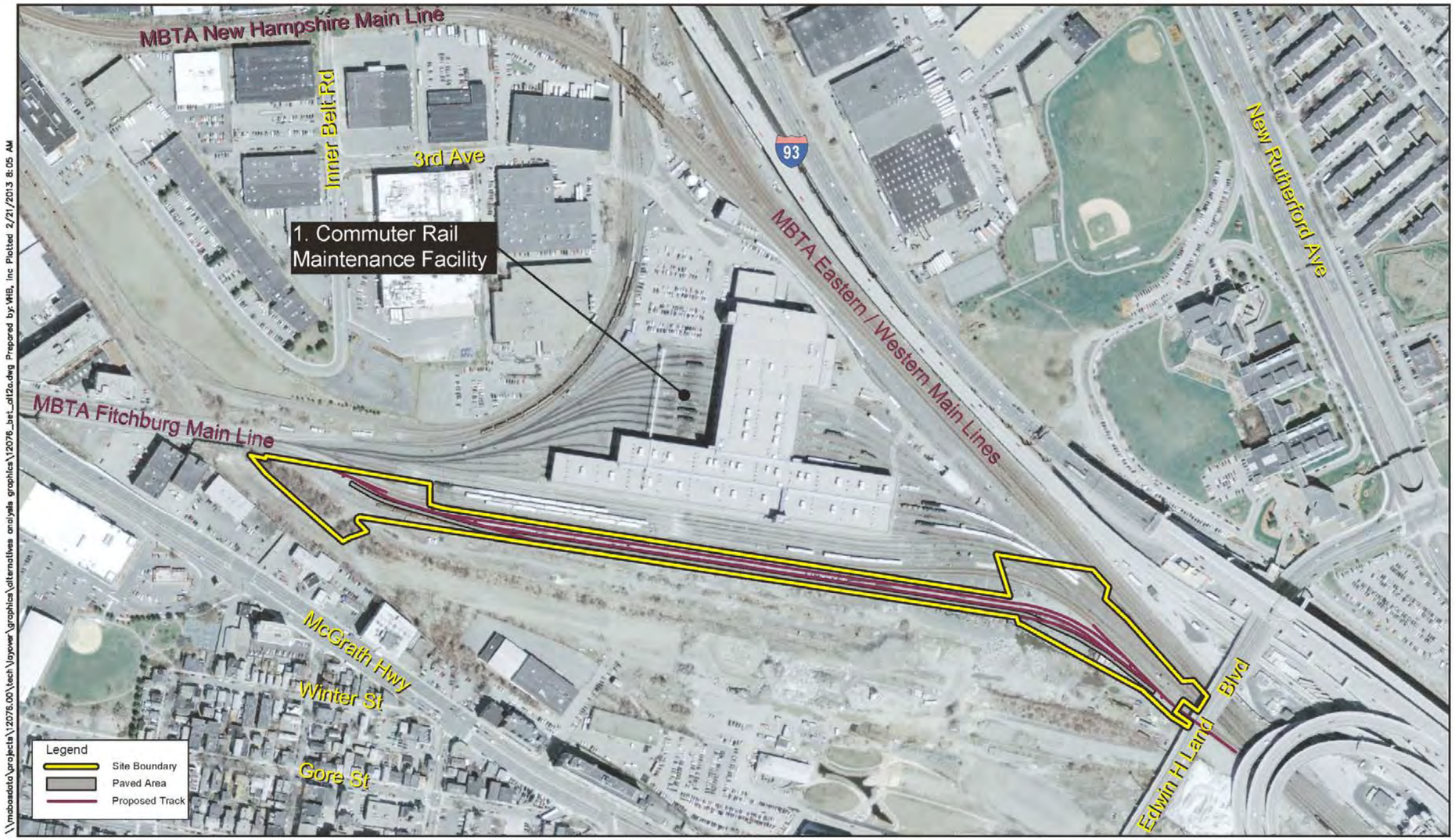
**Figure 40 Commuter Rail Maintenance Facility – Alternative 1**




| Train Capacity Summary Chart | |
|---|---|
| 8-CAR TRAINS AND 1 LOCOMOTIVE | 6 |

Figure 40: **Commuter Rail Maintenance Facility**
Alternative 1

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 41 Beacon Park Yard – Alternative 2**

| Train Capacity Summary Chart | |
|---|---|
| 8-Car Trains and 1 Locomotive | 30 |

Figure 41: **Beacon Park Yard**
Alternative 2

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 42 Cold Storage – Alternative 3**

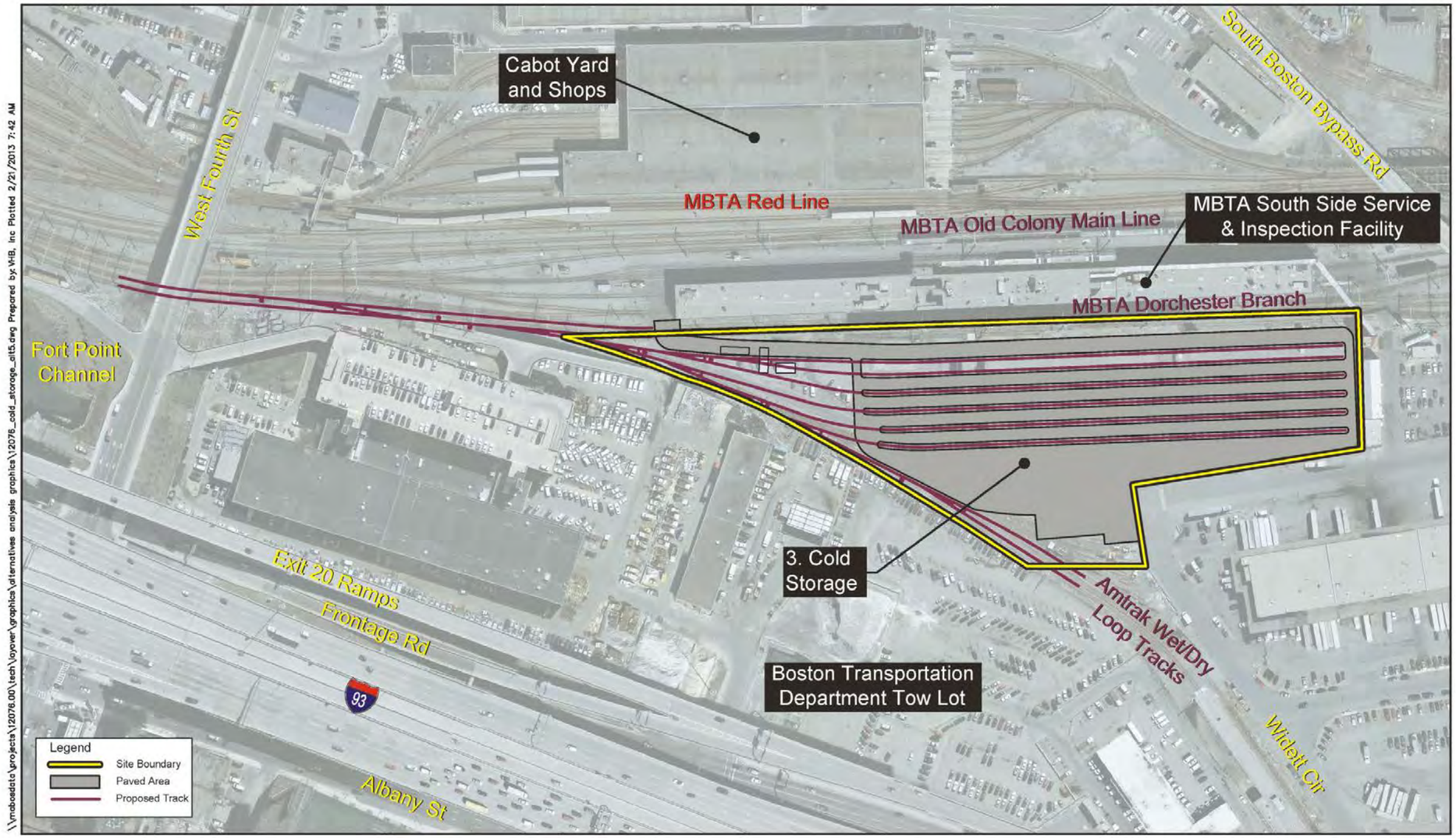



Figure 42: **Cold Storage**
Alternative 3

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 43 Boston Transportation Department Tow Lot – Alternative 5**

Train Capacity Summary Chart

| | |
|---|---|
| 8-Car Trains and 1 Locomotive | 10 |

0 37.5 75 150 Feet

Figure 43: **Boston Transportation Department Tow Lot**
Alternative 5

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 44 Amtrak Southampton Street Service & Inspection West – Alternative 10**

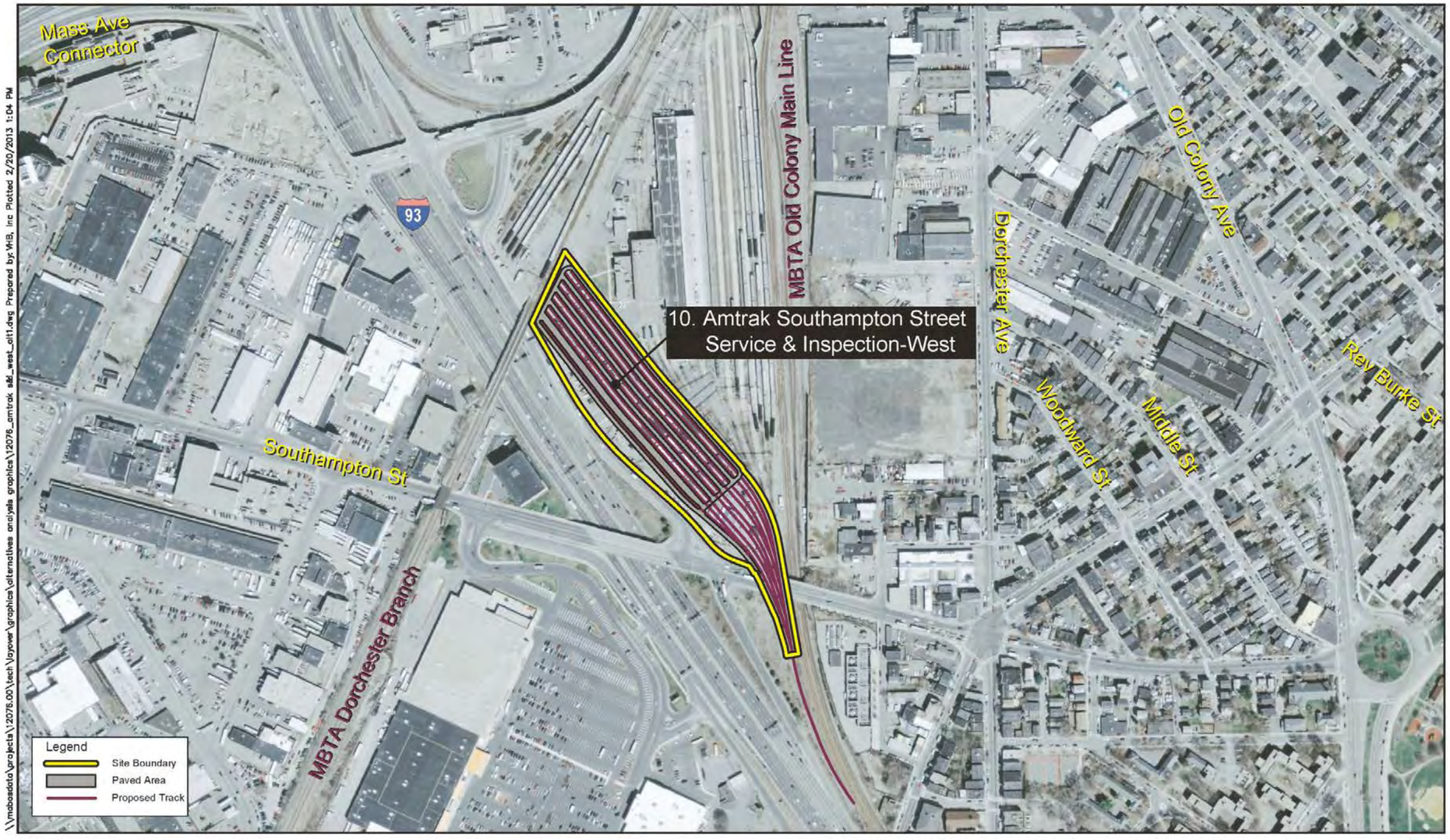



Figure 44: **Amtrak Southampton Street Service & Inspection-West**
Alternative 10

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 45 Dorchester Avenue – Alternative 11**

**Figure 46 NSTAR – Alternative 17**

**Figure 47 Forest Hills – Alternative 18**

Figure 47: **Forest Hills**
Alternative 18

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 48 Lanesville Terrace – Alternative 19**

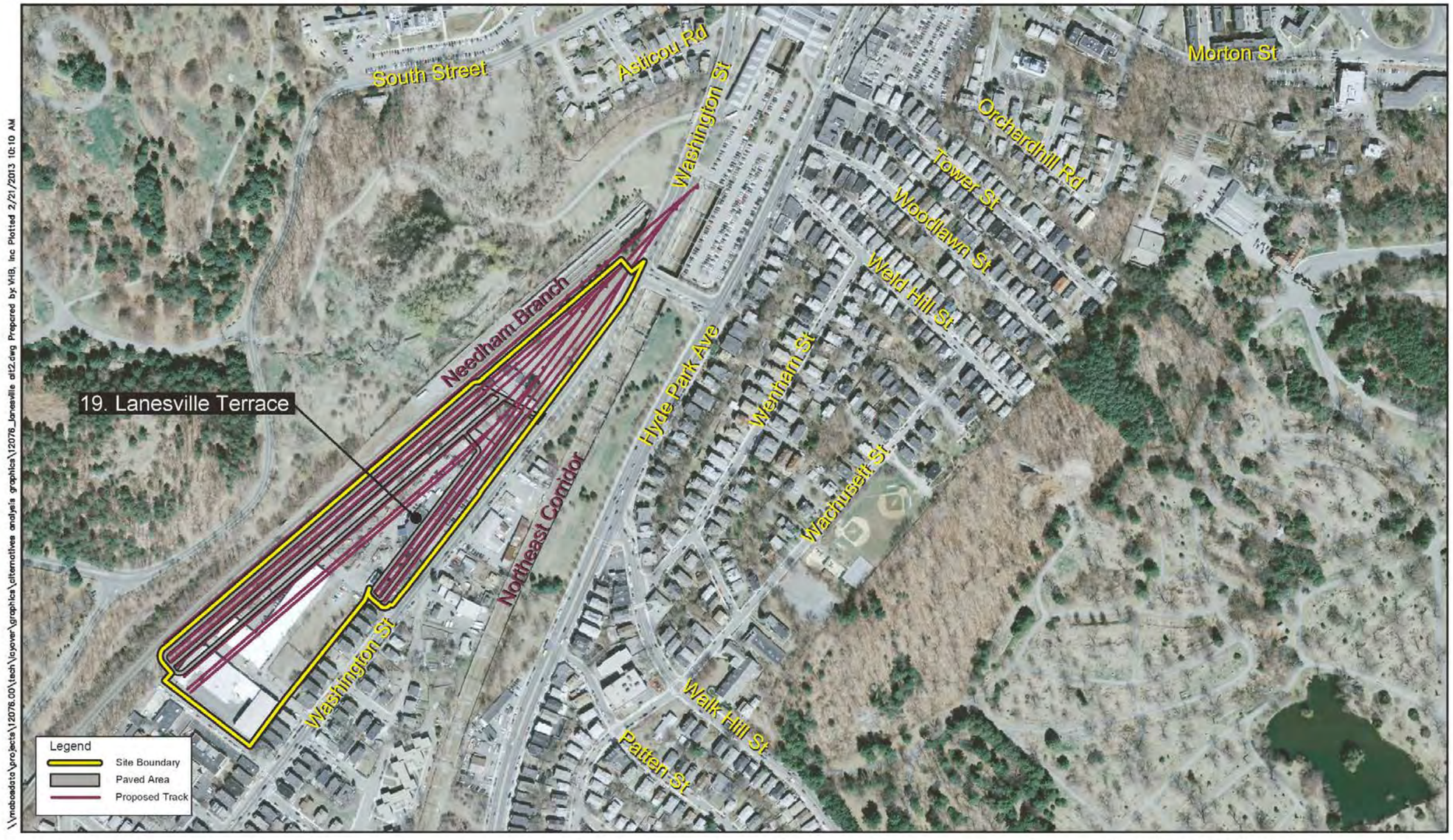
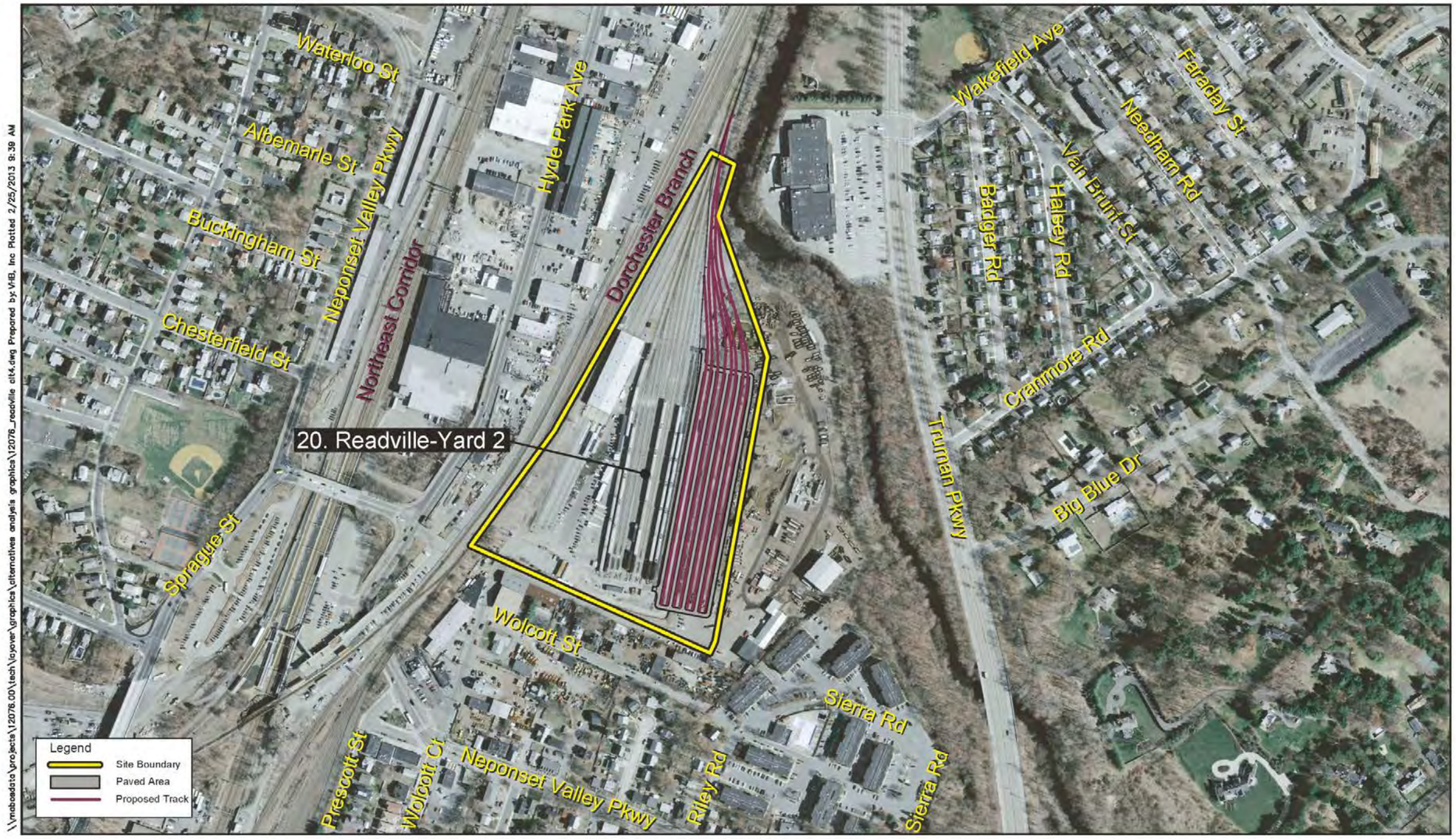



Figure 48: **Lanesville Terrace**
Alternative 19

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

**Figure 49 Readville - Yard 2 – Alternative 20**




Train Capacity Summary Chart

| | |
|---|---|
| 8-Car Trains and 1 Locomotive, Existing | 10 |
| 8-Car Trains and 1 Locomotive, Proposed | 8 |

Figure 49: **Readville-Yard 2**
Alternative 20

SOUTH STATION EXPANSION
**Layover Facility Alternatives Analysis**

# Attachment C Layover Design Guidelines

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# Layover Design Guidelines

This chapter describes the general guidelines used in the site selection process of a new passenger rail layover site. These guidelines have been established based on communications and documentation of existing Amtrak and MBTA layover operations. Layover sites serve two main purposes:

- Provide an area to store trains and stage them for the next revenue run, and;
- Provide an area to service, inspect and perform minor repairs of railroad equipment.

This chapter describes the typical guidelines for layover sites including: location guidelines; service, inspection and maintenance guidelines; rail yard guidelines; and operational guidelines.

## Location Guidelines

There are several variables to analyze when considering the optimal location of a proposed layover site. Some of these variables have a potential to play a major role in the overall efficiency of Amtrak's and/or the MBTA's daily operations. These variables include, but are not limited to, the following:

- **Main Line Rail Access**: The new layover site shall be directly accessible from a main line track to provide the most efficient operation of train movements to and from layover. Yard lead tracks should be long enough to accommodate switching movements (such as rearranging car order in a layover yard) without fouling[31] the main running tracks. Rail access routes that would require public or private at-grade crossings or that would traverse sensitive areas are also to be avoided, to the greatest extent possible. Routes that entail tight curves or other operating conditions that restrict train movements or create undesirable impacts on adjacent land uses should also be avoided to the greatest extent possible.
- **Roadway Site Access:** The new layover site shall be accessible to commercial and emergency service vehicles as well as accessible to employees who will work at, or report to this site. Commercial vehicles need access to deliver supplies such as fuel, oil, parts, food, parcels, and oversized shipments.
- **Proximity to South Station:** Trains traveling to or from the layover sites deadhead to and from South Station.[32] Deadhead distance should be minimized to reduce congestion on main lines, wear and tear on equipment and infrastructure, crew time and operating costs. The distance and/or time it takes a train and crew to deadhead to and from South Station will have an impact on operations and maintenance (O&M) costs for the life of the project. Sites within four track-miles are preferred.
- **Site Characteristics:** The site must accommodate multiple trains on parallel tracks. A level site is a necessity for any tracks where trains will be staged. Rectangular or elongated sites are preferred. In addition to the tracks, the site may also need to accommodate features such as buildings, circulation roads, stormwater runoff infrastructure, power substation, parking, and storage.

[31] Fouling a track is a railroad industry term used to describe the placement of an individual or an item of equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on-track equipment, or within a pre-determined distance from the nearest running track.

[32] Deadheading is a railroad industry term used for the movement of revenue equipment in a non-revenue mode. Deadheading is used to shift equipment and/or crews between locations when they are not in revenue service.

- **Environmental Elements:** Depending on the location of the layover site and the nature of nearby land uses, it may be necessary to provide a noise barrier and/or visual screen of the yard along one or multiple sides. Additionally, if train service and/or fueling are conducted at a site, recovery/containment systems are required to provide a means of collecting fluids that may be spilled to prevent potential pollution of the surrounding environment. An on-site treatment facility may also be provided in combination with the recovery/containment system to process, treat, and/or discharge the wastes in accordance with applicable environmental regulations and permits. Layover sites require that stormwater management practices are conducted in accordance with applicable environmental regulations. Typical stormwater management practices required at a layover site may include a detention basin and an oil/water separator tank. All of the aforementioned environmental elements are anticipated to support layover sites for Amtrak and the MBTA in the vicinity of South Station.

## Railroad Equipment Service Guidelines

Railroad equipment requires service, inspection, running repairs, and maintenance on a regular basis. The nature of the requirements to keep railroad equipment operating safely and efficiently vary greatly and can be federally mandated or based on industry standards, manufacturer guidelines and/or railroad policy. Layover sites provide a number of functions beyond the temporary storage of trains when they are out of revenue service. Facilities must be properly designed and equipped to perform several other train service and inspection functions. In some cases more than one location is required for a railroad to adequately support its operations. For the purposes of this study, it is assumed that both Amtrak and MBTA will continue to operate layover and other support areas in close proximity to South Station to complete these support functions, including:

- **Equipment inspection:** Title 49 of the Code of Federal Regulations (CFR) Part 238,[33] requires new brake inspections and added requirements for maintaining brake system pressurization for parked trains. The brake system pressurization requirement mandates re-testing of the brakes if the brake system is disconnected from a source of compressed air for more than four hours. Yard air systems are needed to allow locomotives to be shut down during layover.

  The FRA brake inspection requirements contained in 49 CFR Part 238 also require brake systems be visually inspected for proper application. While the condition of some coach brake systems may be verified visually from grade level to insure proper application, the increasing use of inboard brakes requires inspection from within the gauge of the track, under the car. This has often been accomplished through provision of an inspection pit running the full length of a train. Alternatively a shorter pit can be used with the inspections occurring as the trains roll slowly over the pit. The inspection pit must be equipped with adequate lighting and drainage, with provision for drainage to be carried into a spill containment system. Remote inspection systems, which accomplish some aspects of this task without use of an inspection pit, have been implemented by other railroads as an industry standard which Amtrak and/or MBTA may elect to adopt for use in their respective facilities in the future. The MBTA's policy for servicing and maintaining its commuter rail fleet adheres to these three factors: MBTA guidelines to inspect and maintain the equipment to a state of good repair and reliability;

- The manufacturer's service and maintenance guidelines ("owner's manual"); and

- All applicable federal regulations including Part 229 Railroad Locomotive Safety Standards[34] and Part 238 Passenger Equipment Safety Standards, both of which are detailed in Title 49 of the CFR.

It is assumed that Amtrak maintains a similar policy for servicing and maintaining its fleet of equipment.

- **Running repairs:** Running repair consists of minor maintenance that can be accomplished in the time available during a scheduled train layover. Typical running repair activities include replacement of lights, brake shoes, air hoses, and HVAC system components as well as fixing jammed doors, and patching of seats. Running repairs also include checking and topping off fluids as needed to support train consists.

[33] Federal Railroad Administration, Department of Transportation. Title 49 Code of Federal Regulations Part 238 – *Passenger Equipment Safety Standards*. November 1, 2011. Accessed at: http://www.gpo.gov
[34] Federal Railroad Administration, Department of Transportation. Title 49 Code of Federal Regulations Part 229 – *Railroad Locomotive Safety Standards*. April 9, 2012. Accessed at: http://www.gpo.gov

- **Interior cleaning:** During layover periods, the interior of each vehicle is picked up and any trash is removed. Lost and abandoned items are removed and sent to a lost and found facility. Cleaning of the coaches can be performed in the Service and Inspection building or in the layover yard itself. In general, it is preferred that cleaning takes place inside the Service and Inspection building, in a controlled environment, with high level platform access to the coaches.
- **Food service and preparation:** There are no dining services provided on MBTA commuter rail trains; however Amtrak currently supplies the food and meals for their café cars at the Southampton Street Yard Maintenance facility. This function is currently performed in a standalone building with good vehicular access for deliveries and for supplying provisions to the coach café cars.
- **Equipment and material storage areas:** Because light maintenance and cleaning are conducted during layover periods, a secure location for the storage of supplies and spare parts is needed. Separate storage areas should be considered for support of the site itself, such as paper products, office supplies, snow equipment, cleaning equipment and restroom supplies. Storage areas must adequately store equipment and materials required to support the operation and maintenance activities conducted by the various crews at each layover location.

**Table 10 Functions by Facility Type**

| Frequency | Function | Facility Type | | |
|---|---|---|---|---|
| | | Layover | Service and Inspection | Maintenance |
| Daily | Calendar Day Mechanical Inspection * | ● | | |
| | Cleaning Service * | ● | | |
| | Storage of Consists* | ● | | |
| | Food Service and Preparation | ● | | |
| | Fueling Service | | ● | |
| | Sanding Service | | ● | |
| Bi-Weekly (10-14 days) | Septic Flushing Service | | ● | |
| | Watering Service | | ● | |
| | Washing Service | | ● | |
| | Running Repairs | ● | ● | ● |
| Quarterly (92 days) | Inspection and Repair | | ● | ● |
| Semi-annual (184 days) | Inspection and Repair | | ● | ● |
| Annual (368 days), Annual+ | Inspection, Repair and Testing | | | ● |
| Biennial (736 days) | Inspection, Repair and Testing | | | ● |
| Triennial (1,104 days) | Inspection, Repair and Testing | | | ● |
| Quadrennial (1,476 days) | Inspection, Repair and Testing | | | ● |
| Sexennial (2,208 days) | Inspection, Repair and Testing | | | ● |

*Typically performed at overnight layover facility

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## Layover Facility Infrastructure Guidelines

Infrastructure required to accommodate the functions of a layover site will vary at any given facility. Utilities, building structures, roadways, tracks, landscaping, fencing, lighting, among other site-specific items, are all part of the infrastructure of a layover site, as discussed below:

- **Train Storage:** Layover areas must have enough tracks of sufficient length to accommodate the number of full length trains programmed for each site. By 2040, it is assumed that all MBTA consists will be eight bi-level coaches and one locomotive. The tracks must be configured so the breakdown of a single train would not trap other operational trains at the site. Design provisions to avoid trapping operational trains behind a disabled train at layover facilities include providing an escape track, internal yard crossovers, or a tail track to allow an engine to run around a disabled train. Layover areas and supporting infrastructure must be properly sized and configured appropriately to accommodate these longer train sets without impacting service.

- **Train Movements:** The majority of train movements in the layover yard will be train consists entering and exiting the yard as well as train consists moving to or from the Service and Inspection area. There will likely be a dedicated crew and locomotive in the yard to make up new consists, swap out equipment, and to shuttle crewless train consists from a layover track to the Service and Inspection area and back. Not all trains will need to enter the Service and Inspection building every day, but will require fueling and sanding on a daily basis. Track configurations through and adjacent to the Service and Inspection/fueling area should be double-ended to allow for the most efficient train movements. Simultaneous train moves in the yard should be possible and at times throughout the day, necessary to maintain schedules at the Service and Inspection area and timetable revenue passenger schedules. The layout of the yard and configuration of tracks should allow flexibility and redundancy in the case of a disabled train, or track out of service.

- **Vehicular Circulation:** In addition to the parking area and the main site access road, every track in the yard that is used to store trains shall be adjacent to at least one access lane. These access lanes shall be able to accommodate train crews, mechanical crews, cleaning crews, maintenance-of-way crews, emergency vehicles, passenger vehicles, pickup trucks and snow removal equipment.

- **Utilities:** Utilities may include electricity, sewer, water, cable/telephone, and gas. While most utilities will be routed underground, a power substation may be required. The power substation could require a large footprint on the site, especially if the rail yard has an electric catenary system.

- **Buildings and Structures:** A layover site includes enclosed space to support the various railroad department crews and equipment required by all aspects of operations occurring within that site. At a minimum, operating department road foremen, yardmasters, and trainmasters will require office space to perform their duties to support train movements within the yard. Storage areas must adequately store equipment and materials required to support the operation and maintenance activities conducted by the various crews at each layover location.

  Train layovers in the area of South Station typically operate between two to four hours daily (weekdays). In some cases they may be operational 10 hours or longer, necessitating crew accommodations with rest areas, HVAC, restrooms, lockers and provisions for waiting possibly including a food preparation area and/or vending machines. The accommodations should also

include a separate space for conducting job briefings for crews going back on duty as well as an area to assemble train orders and obtain track authority paperwork. These sites typically serve as headquarters for switching crews working in the yard.

Other supporting departments, such as engineering, railroad police, maintenance-of-way, communication and signals, bridge and buildings, power, or overhead contact systems, often use a centralized facility such as a layover facility as a headquarters location.

- **Security and Lighting:** Security measures must also be implemented to insure that sites are not accessible to the general public. Site security measures typically include perimeter fencing and gates, site lighting, key/card access to buildings, remote cameras, and building alarms.

## Operational Guidelines

While a single alternative may provide all or most of the physical space needed to fulfill the projected layover need, using a single location to layover too many consists may be detrimental to railroad operations at South Station's interlocking plant, known as Tower 1. In railway signaling terms, an interlocking is defined as an arrangement of signals and apparatus that prevents conflicting movements through an arrangement of tracks such as junctions or crossings.

In keeping with the overall objective of the project to allow for increased high speed and intercity rail service, the layover sites should be situated so as to not interfere with Amtrak operations to the greatest extent possible. This means that revenue trains heading to layover or layover trains heading for revenue service should minimize, to the greatest extent possible, the need to unnecessarily cross over tracks at Tower 1 and the setup interlockings. Because of a split in the South Station/Tower 1 area, in order to allow for optimal performance of railroad operations, trains should be traveling to layover sites based on their platform location at South Station. Trains on western platforms should be laying over at points west or southwest of the station while trains on the eastern platforms should be laying over at points south of the station. It is assumed that Amtrak will continue to use its Southampton Street Yard facility for layover and maintenance purposes so Amtrak trains would be best to use the centrally located platform tracks. The MBTA Framingham/Worcester, Needham, some Franklin and some Providence/Stoughton Line trains would be best to use the tracks situated on the western side of the station. The MBTA Greenbush, Plymouth/Kingston, Middleborough/Lakeville, Fairmount, some Franklin and some Providence/Stoughton Line trains would use the eastern side of the station.

The general layout of layover facilities, support buildings, yard tracks and lead tracks should complement the overall operational need of the layover site. The yard lead should be designed in a manner that will expedite the movement of trains in preparation of peak periods and allow some redundancy for operational flexibility.

A control tower and a yard switcher would also be operational guidelines of a new layover site and would have the functions described as follows:

- **Control Tower:** The purpose of the control tower or control office, is to expedite train movements. Train operations within a complex layover yard and maintenance facility will require a control system to manipulate turnouts and signals used within yard limits. The yard office typically accepts trains exiting a main line track and routes them through the yard to the proper storage or maintenance track. This takes the burden off of the main line dispatcher and allows the yardmaster to coordinate trains locally.
- **Yard Switcher:** The yard switcher will serve several purposes inside and outside of the layover yard. Some of the duties assigned to the yard switcher are:
    - When trains enter the layover yard and the crews are released to the welfare facilities, the train consists will still need to move about the yard to get fueled and run through the Service and Inspection shop. In this instance, it makes sense to have a crew dedicated to shuffling trains in the yard, whether by boarding the consist or by coupling to the consist with a switcher locomotive.
    - From time to time, new consists will need to be assembled to fulfill the needs of the equipment cycle. The yard switcher builds trains, swaps equipment and moves the equipment to the necessary tracks.
    - Shuttling equipment back and forth from the MBTA's Commuter Rail Maintenance Facility (CRMF) in Somerville is usually performed with the use of the yard switcher. This is

necessary to exchange equipment that is due for FRA interval inspections or heavy maintenance and repairs.

- The yard switcher is on standby to rescue disabled equipment on the main lines and return the equipment to the Service and Inspection shops, if necessary.

## Railroad Design Criteria

The purpose of this section is to identify the design parameters used during conceptual design of the new layover site and the basis of design as this project moves forward into Preliminary Engineering. As this project progresses, the designs will be refined and modified to accommodate changes in design guidelines for this project. This section contains descriptions for the following design criteria:

- General
- Design Speeds
- Horizontal Alignment Design Criteria
- Vertical Alignment Design Criteria
- Track Gauge
- Trackwork Design
- Track Structure
- Roadway Design
- Clearances
- Overbuild of Right-of-Way

### General

Roadway design shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 3, Geometric Design Criteria*[35] except as noted herein.

- In territory with Amtrak operations, the roadway design shall also conform to National Railroad Passenger Corporation *Limits and Specifications for Track Safety Maintenance and Construction MW 1000*[36] and Amtrak SPEC NO 63 *Track Design Specification*.[37]
- Minimum track length shall accommodate an eight car consist with one locomotive, resulting in 751 feet between clearance points.
- While it is desirable that yard tracks are tangent, since yards are not within platform limits, curved track will be acceptable.

### Design Speeds

- Main Tracks (Passenger): 70 mph (2.75" Unbalance superelevation)
- Maximum speed: Maximum speed allowed by local conditions

Freight trains' maximum authorized speed shall be governed by the optimal geometry for passenger operations.

[35] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 3, Geometric Design Criteria. Revision No. 1, April 19, 1996.
[36] National Railroad Passenger Corporation, Amtrak Engineering. *Amtrak Specification No. 63, Track Design Specification*. Revised October 15, 2011.
[37] National Railroad Passenger Corporation. *Amtrak Safety Limits and Specifications for Maintenance and Construction of Track.* M.W. -1000. Revision 2, January 1, 1992.

### Horizontal Alignment Design Criteria

- Turnouts for main line will be Number 10 or greater.
- Turnouts for yards will be Number 8 or greater.
- Turnouts for industry tracks shall meet MBTA Design Criteria.
- Curvature will be defined by chord definition and degree of curvature.
- Maximum degree of curvature in yards will be 12° 30'.
- Superelevation:
    - Freights are assumed to operate on all sections of existing track, where the maximum actual superelevation (Ea) shall be 4 inches.
    - In areas where track is not used by freight trains maximum actual superelevation (Ea) shall be 6 inches.
    - In areas where track is used by freight trains maximum actual superelevation (Ea) shall be 3 inches based on 1 ½ inches of unbalance.
- Combining Spirals:
    - Combining spirals shall be used between compound curves except where Ea does not change and the difference in Eu is less than 1/2 inch.
    - Spiral lengths shall equal or exceed the following values:
        - Ls (compound) ≥ 1.63 (Δ Eu) V
        - Ls (compound) ≥ 80 (Δ Ea)
        - Ls (compound) ≥ 62 Δ Ea (where V ≤ 50 mph)

If combining spirals are used, additional definitions and equations shall be provided from *Route Locations and Design*, Fifth Edition, by Thomas F. Hickerson, McGraw-Hill Book Company, 1964.

### Vertical Alignment Design Criteria

- The vertical alignment shall be designed using the *MBTA Commuter Rail Design Standards Manual*[38] except as noted below.
- The minimum length of vertical curves shall be designed based on the *American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual* Chapter 5, Section 3.6 - Vertical Curves (Figure II-1).[39]

### Track Gauge

- 4 feet 8-1/2 inches measured 5/8 of an inch below top of rail on gauge face of the rail.

[38] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, April 19, 1996.
[39] American Railway Engineering and Maintenance-of-Way Association. *American Railway Engineering and Maintenance-of-Way Association Manual.* Chapter 5- Track, Section 3.6 Vertical Curves (2002), Figure II-1.

### Trackwork Design

Ballasted track construction will be used at all locations except on open deck bridges subject to MBTA approval. Track materials shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 4, Trackwork Criteria*[40] except as noted herein.

### Track Structure

- **Rail:** All new rail shall be 132 RE section, continuously welded rail (CWR). Electric flash butt welding shall be used wherever possible for field welds. CWR strings shall be field cut for insertion of special trackwork and insulated joints. Insulated rail joints shall be shop-manufactured per MBTA Drawing Number 1340.

  Suitable relay rail may be used on freight sidings and yards, maintenance of way tracks, and other non-revenue areas.

- **Ties:** Wood crossties shall be used on all main tracks, bridges with bridge guardrail and special trackwork. Rail shall be fastened to the ties using a resilient fastener system to be specified by the MBTA. Vibration dampening tie plates and fasteners shall be used on all open deck bridges and on direct fixation trackwork.

- **Rail Lubricators:** All existing rail lubricators shall be relocated as required.

- **Railroad Signs:** Mileposts, whistle and repeat whistle posts, and speed restriction signs shall be as specified in the MBTA's *Railroad Operations Book of Standard Plans*.[41]

### Roadway Design

Roadway Design shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 5, Roadway Criteria*[42] except as noted herein.

- **Track Roadbed:** Track roadbed shall generally conform to MBTA Standard Drawing Numbers 1000 and 1002.

- **Slopes and Walls:** Side slopes shall generally be 2H:1V. Stabilized 1.5H:1V slopes will be considered where steeper slopes are required to avoid wetlands, right-of-way lines, or excessive earthwork, and existing slopes in the vicinity demonstrate that 1.5H:1V slopes are stable.

- Retaining walls or reinforced slopes may be used to avoid land acquisition or wetlands impacts associated with normal side slopes. A reinforced slope will be specified where a 1H:1V slope can be placed within the site constraints; otherwise a retaining wall will be used. Retaining walls will generally be contractor designed based on a wall elevation and performance specifications. Mechanically stabilized earth panel walls and precast modular walls will be approved systems. Walls shall be placed at least 10 feet from centerline of nearest track wherever possible. Walls shall be topped with a concrete cap with embedded 6-foot chain link fence. Wall layout and specifications shall account for the characteristics of all permitted wall systems including, tiebacks and whalers, geogrids, and wall thickness. Design of track drains and culverts must be

[40] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 4 – Trackwork Criteria, April 19, 1996.
[41] Massachusetts Bay Transportation Authority. *Railroad Operations Book of Standard Plan,* October 28, 1992. Revised April 29, 1996.
[42] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 5 – Roadway Criteria, April 19, 1996.

coordinated with layout and drainage requirements of each wall. Duct banks or cable troughs may be required to avoid conflicts between signal and communications cables and buried wall components such as geogrids.

### Clearances

Track centers and clearances to horizontal and vertical obstructions shall conform to the *MBTA Commuter Rail Design Standards Manual, Chapter 6, Clearance Criteria*[43] except as noted herein.

- **Track Centers in Tangent Section of Track:** the minimum horizontal distance between railroad track centerlines shall be 14 feet.
- **Track Centers within yard limits:** the minimum horizontal distance between railroad track centerlines shall be 18 feet.
- Road widths within yard limits shall be 14 feet with 24 feet between track centers.
- **Track Centers in Curved Sections of Track:** the minimum horizontal distance between track centers and track center widening in curves shall be as shown in MBTA Standard Drawings, 1000 Series.
- **Yard tracks and Industry Sidings Track Centers:** the minimum distance between yard tracks and freight sidings parallel to a main track shall be no closer than 17 feet-0 inches from the centerline of any main track. See MBTA Drawing Number 1020 for more information on Industry Sidings.
- **Standard Side Clearances:** Standard side clearances from the centerline of track including clearance increases for curvature and superelevation shall be as shown in MBTA standard drawings.
- Track with existing freight service shall provide minimum clearances and allow for Plate E clearance.
- Bridges passing over the railroad will be required to meet existing vertical clearances.
- Vertical Clearances are measured from the top of rail projected 8 feet -6 inches from centerline of track to bottom of structure.
- The above clearances are based on the following assumptions:
  - Provision for future track raising is not included.
  - Provision for double stack freight clearances is not provided.
- **Standard Clearances Tangent Track Signal Equipment & Utility Crossings:** Standard Clearances Tangent Track Signal Equipment and Utility Crossings shall be as shown in MBTA Drawing Number 1014.
- Dwarf signals, through plate girders shall be as shown in MBTA Drawing Number 1014.
- **Safety Niches:** Continuous obstructions (e.g. sound barriers, walls.) are allowed to encroach within standard clearance. See the *MBTA Commuter Rail Design Standards Manual* for more information.
- Any horizontal clearance below standard clearance track requires written approval.

[43] Massachusetts Bay Transportation Authority. *Commuter Rail Design Standards Manual*, Volume 1, Section 1 - Track and Roadway, Chapter 6 – Clearance Criteria, April 19, 1996.

- Minimum distance from track center to face of catenary pole shall not be less than 8 feet-6 inches in tangents.

### Overbuild of Right-of-Way

Layover yards located in closed or partially enclosed structures shall provide for adequate ventilation, illumination, emergency egress and fire protection to provide a safe environment for employees during normal and emergency operations. The design will make all accommodations to the above grade structure, and shall be responsible for the design, construction and maintenance of the systems in conformance with MBTA design standards, AREMA guidelines, FRA regulations, and applicable local, state and federal building codes and referenced documents.

Overbuild and air rights legal agreements between two or more parties may also contain conditions of design or design criteria specific to the agreement. The conditions of such agreements pertaining to design shall be met to the greatest extent possible without conflict of the aforementioned standards, guidelines, regulations and codes.

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SOUTH STATION
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# Attachment D

# ENF Supplemental Information

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# 1. Alternative Layover Facilities Sites Location Data

The SSX project includes development at the South Station site as well as construction of layover facilities at one or more sites in proximity to South Station. Table 1, supplementing the ENF Table on page 1, provides location data for the three alternative layover facilities sites under consideration for the SSX project.

**Table 1 – Alternative Layover Facilities Site Location Data**

| Site | Address | Watershed | Latitude/Longitude | Universal Transverse Mercator Coordinates |
|---|---|---|---|---|
| BTD Tow Lot | 200 Frontage Road Boston, MA | Boston Harbor | 42° 20' 19.21"N 71° 3' 46.21"W | Zone 19 330066 Easting 4689440 Northing |
| Beacon Park Yard | 0 Cambridge Street, Boston, MA | Charles River | 42° 21' 19.85"N 71° 7' 27.84"W | Zone 19 325041 Easting 4691436 Northing |
| Readville Yard 2 | 50 Wolcott Court, Boston, MA | Neponset River | 42° 14' 16.818"N 71° 7' 53.508" W | Zone 19 324127 Easting 4678402 Northing |

# 2. Massachusetts Contingency Plan: Summary of Release Tracking Numbers

Both the South Station Site and the alternative layover sites have been regulated under the Massachusetts Contingency Plan (MGL Chapter 21E). The following tables provide the current status of the sites, including Release Tracking Numbers (RTNs), notification dates, compliance (Response Action Outcome [RAO]) status and closure dates.

Table 2 provides a summary of RTNs for the South Station site. The 22 RTNs associated with the South Station site include six RTNs associated with the existing USPS facility/property, 15 RTNs associated with the existing South Station parcel and track ROW, and one RTN associated with the South Station site boundary at Summer Street and Dorchester Avenue. All of the sites are closed.

**Table 2 - Summary of Release Tracking Numbers: South Station Site**

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| **USPS Facility/Property** | | | | | |
| 3-15044 | 25 Dorchester Ave. | South Postal Annex | 4/26/1997 | RAO-A1 | 6/30/1997 |
| 3-15517 | 25 Dorchester Ave. | Postal Service P and DC | 9/12/1997 | RAO-A1 | 11/10/1997 |
| 3-18353 | 25 Dorchester Ave. | South Postal Annex | 5/28/1999 | RAO-A1 | 7/29/1999 |
| 3-24692 | 25 Dorchester Ave. | Summer and A Streets | 3/13/2005 | RAO-A1 | 5/9/2005 |
| 3-27393 | 25 Dorchester Ave. | USPS Facility | 1/14/2008 | RAO-A1 | 3/13/2008 |
| 3-24162 | Summer St. | USPS General Mail Facility | 8/20/2004 | RAO-A1 | 1/28/2005 |

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| **South Station and ROW** | | | | | |
| 3-0555 | Summer St. | South Station Foundation | 1/15/1987 | LSP No Further Action | 12/30/1996 |
| 3-18045 | 2 South Station | Amtrak | 3/2/1999 | RAO–A1 | 5/7/1999 |
| 3-20324 | 2 South Station | South Station Track 2 | 1/18/2001 | RAO–A1 | 7/27/2001 |
| 3-20757 | South Station | Amtrak Mile Post #228 | 6/1/2001 | RAO–A1 | 8/2/2001 |
| 3-10376 | Near Atlantic Ave. Kneeland St. | South Station/Interim Ramp/Bent SSC3B | 12/29/1993 | RAO-A2 | 12/30/1994 |
| 3-10377 | | South Station Pier SSC3a | 12/29/1993 | RAO-A2 | 12/30/1994 |
| 3-13064 | 195 Summer St. | South Station Track #7 | 10/23/1995 | RAO-A2 | 12/22/1995 |
| 3-13291 | 2 South Station | Track #7 | 12/22/1995 | RAO-A2 | 11/1/2000 |
| 3-24208 | Kneeland St. & Atlantic Ave. | Track #7 Mile 228 | 9/1/2004 | RAO-A2 | 9/1/2005 |
| 3-26714 | Summer St. & Atlantic Ave. | South Station Framingham Line Diesel Fuel | 3/29/2007 | RAO-A2 | 7/23/2007 |
| 3-29093 | South Station | Railroad Tracks | 2/26/2010 | RAO-A2 | 4/30/2010 |
| 3-19396 | 700 Atlantic Ave. | South Station Bus Terminal | 3/24/2000 | RAO-A3 | 8/11/2005 |
| 3-1993 | Summer St. | South Station Terminal | 4/15/1989 | RAO-B1 | 8/2/1996 |
| 3-16008 | Albany at Herald St. | Central Artery MA Hwy. | 9/21/1998 | MassDEP Memorandum of Understanding | 5/26/2005 |
| 3-16026 | Albany & Herald Sts. | No Location Aid | 12/30/2005 | MassDEP Memorandum of Understanding | 12/30/2005 |
| **Site Boundary and Summer Street and Dorchester Avenue** | | | | | |
| 3-1305 | Summer St./Dorchester Ave. | Boston Thermal Energy Co. | 1/15/1990 | RAO-A2 | 3/25/2009 |

Table 3 provides a summary of RTNs for the BTD Tow Lot alternative layover facility site. All of the sites are closed.

**Table 3 - Summary of Release Tracking Numbers: BTD Tow Lot Site**

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| 3-2854 | 200 Frontage Rd. | City of Boston Trans | 1/15/1990 | MassDEP No Further Action | 4/24/1996 |
| 3-11499 | 210 Frontage Rd. | No Location Aid | 8/16/1994 | RAO – A2 | 4/29/2005 |
| 3-25562 | 200 Frontage Rd. | Boston Transportation Dept. | 1/10/2006 | RAO – B1 | 4/24/2008 |

Table 4 provides a summary of RTNs for the Beacon Park Yard alternative layover facility site. For the proposed Beacon Park Yard layover facility site, there may be sites identified in Table 4 that may not be located within the actual limit of the property to be utilized for the layover facility. To be conservative, all of the sites associated with the larger Beacon Park Yard property are included in Table 4. With the exception of one site which is undergoing remediation (RTN 3-30413), all of the sites are closed.

**Table 4- Summary of Release Tracking Numbers: Beacon Park Yard Site**

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| 3-4495 | 170 Cambridge St. | Beacon Park Yard Engine Facility | 2/24/1994 | RAO – C1 | 5/1/2000 |
| 3-10064 | 170 Cambridge St. | Beacon Park Engine House | 10/16/1993 | RAO – C1 | 5/1/2000 |
| 3-10503 | 170 Cambridge St. | No Location Aid | 1/28/1994 | RAO – C1 | 5/1/2000 |
| 3-10872 | 170 Cambridge St. | Conrail Freight Yard | 4/18/1994 | RAO – C1 | 5/1/2000 |
| 3-11142 | 170 Cambridge St. | Beacon Park Yard | 6/14/1994 | RAO – A2 | 5/1/2000 |
| 3-11474 | 174 Cambridge St. | Beacon Park Yard | 8/16/1994 | RAO – A2 | 10/24/1994 |
| 3-11552 | 170 Cambridge St. | Conrail Beacon Park Yard | 8/30/1994 | RAO – A1 | 12/29/1994 |
| 3-11783 | 170 Cambridge Street | Fueling Pad | 10/27/1994 | RAO – C1 | 11/7/2000 |
| 3-12106 | 170 Cambridge St. | Base of Compressor Rear of Building | 1/23/1995 | RAO – A1 | 2/2/1996 |
| 3-12585 | 170 Cambridge St. | Rail Yard | 6/16/1995 | RAO – A1 | 8/14/1995 |
| 3-15067 | 170 Cambridge St. | At Conrail Charles River Flexvan | 3/29/1997 | RAO – C1 | 10/8/2003 |
| 3-15260 | Cambridge St. | Conrail Yard | 6/30/1997 | RAO – A2 | 8/29/1997 |

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| 3-15898 | Cambridge St. | Flexivan Entrance | 1/6/1998 | RTN Closed | 8/27/1998 |
| 3-19635 | Cambridge St. and Soldiers Field Rd. | Parcel 1C and 1D | 11/6/2000 | RAO – C1 | 11/12/2008 |
| 3-19946 | 170 Cambridge St. | Beacon Park Soldiers Field Rd | 9/18/2000 | RAO – A2 | 11/27/2000 |
| 3-20313 | 170 Cambridge St. | CSX RR | 1/16/2001 | RAO –A1 | 12/9/2002 |
| 3-20882 | 52 Cambridge St. | No Location Aid | 6/13/2001 | Down-gradient property status; remediation not required | 6/13/2002 |
| 3-21176 | 170 Cambridge St. | Beacon Yard Outfall | 10/17/2001 | RAO – A1 | 7/11/2002 |
| 3-21281 | 100 Cambridge St. | CSX International | 11/29/2001 | RAO – A1 | 2/22/2002 |
| 3-22818 | 170 Cambridge St. | CSX Trans | 4/26/2003 | RAO – A2 | 12/5/2003 |
| 3-24580 | 100 Cambridge St. | CSX-Beacon Yards | 1/22/2005 | RAO – A1 | 3/23/2005 |
| 3-25305 | 170 Cambridge St. | CSX Rail Yard & Tracks | 10/11/2005 | RAO – A2 | 9/27/2006 |
| 3-25680 | 170 Cambridge St. | CSX Rail Identifier – Pad 1 QB-511 | 2/19/2006 | RAO – A1 | 4/21/2006 |
| 3-26455 | 100 Cambridge St. | No Location Aid | 12/8/2006 | RAO – A2 | 2/1/2007 |
| 3-26496 | 100 Cambridge St. | Rail Yard | 12/29/2006 | RAO – A2 | 2/22/2007 |
| 3-26661 | 100 Cambridge St. | CSX Facility | 3/8/2007 | RAO – A2 | 5/17/2007 |
| 3-27208 | 310 Cambridge St. | CSX Rail Yard | 10/23/2007 | RAO – A2 | 12/24/2007 |
| 3-27271 | 170 Cambridge St. | CSX Rail Yard | 11/21/2007 | RAO – A2 | 1/25/2008 |
| 3-28036 | 100 Cambridge St. | Diesel Leak CSX Yard | 10/3/2008 | RAO – A1 | 11/13/2008 |
| 3-28327 | 170 Cambridge St. | CSX Rail Yard | 2/19/2009 | RTN Closed | 4/20/2009 |
| 3-29249 | 100 Cambridge St. | CSX Rail Yard | 5/2/2010 | RAO – A2 | 6/24/2010 |
| 3-29280 | 170 Cambridge St. | CSX Beacon Park Yard | 5/20/2010 | RAO – A1 | 7/16/2010 |
| 3-29627 | 100 Cambridge St. | CSX Rail Yard | 11/5/2010 | RAO – A2 | 2/8/2001 |
| 3-29969 | 100 Cambridge St. | CSX Rail Yard | 5/1/2011 | RAO – A1 | 6/29/2001 |
| 3-30157 | 170 Cambridge St. | Beacon Park Yard | 7/21/2011 | RAO – A1 | 9/20/2011 |
| 3-30215 | 170 Cambridge St. | CSX Rail Yard | 8/10/2011 | RAO – A1 | 8/10/2012 |
| 3-30288 | 100 Cambridge St. | CSX Rail Yard | 9/7/2011 | RAO – A2 | 7/30/2012 |
| 3-30326 | 170 Cambridge St. | Beacon Park Yard | 9/26/2011 | RAO – A1 | 11/23/2011 |
| 3-30373 | 170 Cambridge St. | CSX Rail Yard | 10/7/2011 | RAO – A2 | 2/6/2012 |
| 3-30413 | 100 Cambridge St. | Areas C1 thru C4 and D | 10/26/2011 | Tier II/Phase II | 11/2/2012 |

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| 3-30423 | 100 Cambridge St. | CSX Rail Yard | 11/2/2011 | RAO – A1 | 1/10/2012 |
| 3-30428 | 310 Cambridge St. | CSX Rail Yard | 11/3/2011 | RAO – A2 | 10/15/2012 |
| 3-30464 | 100 Cambridge St. | CSX Transportation Inc. | 11/18/2011 | RAO – A1 | 1/20/2012 |
| 3-30493 | 100 Cambridge St. | CSX Intermodal Facility | 12/2/2011 | RAO – A2 | 4/3/2012 |
| 3-30531 | 170 Cambridge St. | Beacon Park Yard | 12/30/2011 | RTN Closed | 9/24/2012 |
| 3-31122 | 100 Cambridge St. | CSX Rail Yard | 9/26/2012 | RAO – A2 | 11/27/ 2012 |

Table 5 provides a summary of RTNs for the Readville Yard 2 alternative layover facility site. RTN 3-15991 has achieved a temporary solution only, and is considered to be open. The remaining site, RTN 3-29327, is closed.

**Table 5-- Summary of Release Tracking Numbers: Readville Yard 2 Site**

| RTN | Release Address | Site Name | Notification Date | Compliance Status | Compliance Date |
|---|---|---|---|---|---|
| 3-15991 | 50 Rear Wolcott Ct. | Wolcott Court and Street | 2/6/1998 | RAO – C2 | 4/29/2011 |
| 3-29327 | Hyde Park Ave. | No Location Aid | 6/15/2010 | RAO – A2 | 7/27/2010 |

SOUTH STATION
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# Attachment E

# ENF Circulation List

# ENF Circulation List

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New England Region
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Boston, MA 02108

Massachusetts Department of Environmental Protection
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Wilmington, MA 01887

Massachusetts Department of Environmental Protection, Boston
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1 Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection, Boston
Attention: Water Quality Program
1 Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection, Boston
Attention: Wastewater and Sewer Program
1 Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection, Boston
Attention: Bureau of Waste Site Cleanup
1 Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection, Boston
Attention: Air and Climate, Asbestos, Construction and Demolition Program
1 Winter Street
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Massachusetts Department of Labor and Workforce Development
Attention: Department of Labor Standards
19 Staniford Street, 2nd Floor
Boston, MA 02114

Massachusetts Department of Transportation
Public/Private Development Unit
10 Park Plaza, Suite 4160
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Massachusetts Department of Transportation
Highway Division District 6
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Massachusetts Historical Commission
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Massachusetts Office of Coastal Zone Management
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Massachusetts Division of Marine Fisheries
251 Causeway Street, Suite 400
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Massachusetts Department of Conservation and Recreation
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Massachusetts Division of Energy Resources
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City of Boston Public Library, Central Branch
700 Boylston Street
Boston, MA 02116

State Transportation Library of Massachusetts
10 Park Plaza
Boston, MA 02116

The State Library of Massachusetts
24 Beacon Street
State House, Room 341
Boston, MA 02133